



## State of Utah

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*Governor*

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## Office of the Governor

PUBLIC LANDS POLICY COORDINATION

JOHN HARJA  
*Director*

January 23, 2008

Selma Sierra  
Director, Utah State Office  
Bureau of Land Management  
440 West 200 South, Suite 500  
Salt Lake City, Utah 84101

SUBJECT: Richfield Field Office Draft Resource Management Plan & Draft  
Environmental Impact Statement

Dear Director Sierra:

The State of Utah appreciates the opportunity to work with the Bureau of Land Management as a formal cooperating agency in the preparation of Resource Management Plans and other environmental documentation throughout the state. The state also appreciates the BLM extending similar status to local governmental entities that have a stake in the planning area under consideration. The state firmly believes that cooperative discussions among the various landowners and regulatory agencies will lead to the best possible final product.

The state, local governments and BLM have invested considerable time and effort working together in these planning efforts. The state's expectation is that this process will continue and lead to a well-reasoned and well-formulated plan. An important part of this process will be ensuring that the plan is consistent with state and local plans, policies, and laws, to the maximum extent possible. The plan will then represent a reasonable compromise on the various facets of multiple-use management.

The Public Lands Policy Coordination Office (PLPCO) is tasked by state law to ensure that the positions of the state and its political subdivisions are considered in the development of public lands policy. To this end, PLPCO collected, reviewed and coordinated input from various state agencies, shared this information with local government, sought local government response, and prepared this comments on behalf of the state. While the state considered local governments' input during preparation of its comments, the BLM should also fully consider the comments submitted directly by local governments.

Initially, the state wishes to recognize and applaud the partnership it has with the BLM on many issues. The restoration and watershed improvement work funded and implemented through the Utah Partners for Conservation and Development is a good example of the achievements possible when agencies work for the improved health of the lands and resources. We are optimistic that similar efforts regarding cultural resources and air quality will be as successful.

The comments and concerns raised below are offered in the spirit of cooperation through disclosure, analysis and adherence to the provisions of law, regulation, good governance and common sense. The state recognizes planning as a dynamic process that will continue into the future, and reserves the right to supplement these comments as necessary. The state looks forward to resolution of these issues as a cooperating agency through the preparation of the Final EIS and Final Resource Management Plan.

***Consistency with State and Local Laws and Ordinances:***

The Federal Land Policy and Management Act (FLPMA), in section 202(c)(9), provides that the Bureau of Land Management (BLM) shall "keep apprised of State, local, and tribal land use plans" and "assure that consideration is given to those ... plans that are germane in the development of land use plans for public lands." FLPMA continues by requiring the BLM to assure that the BLM's land use plans are "consistent with State and local plans to the maximum extent ... consistent with Federal law and the purposes of [FLPMA]."

BLM regulation 43 C.F.R. §1601.0-5(c) defines consistent to mean that the BLM "will adhere to the terms, conditions, and decisions, of officially approved and adopted resource related plans, or in their absence, with policies and programs" of state and local governments. BLM regulation 43 C.F.R. §1601.0-5(g) defines officially approved and adopted resource related plans as "plans, policies, programs and processes" approved pursuant to state legislation "which have the force and effect of state law."

Utah Code section 63-38d-401, *et seq.*, provides standards for state policies, plans, programs, and processes related to use, development and protection for federal lands and resources on federal lands in the State of Utah. It is the policy of the state that this legislation reflects criteria which must be considered during federal planning processes for federal lands, and thereby represents the outline of official plans, policies, programs or processes as referenced in BLM regulation 43 C.F.R. § 1601.0-5(g). The State of Utah will analyze final plans of the BLM in light of the official policy and planning statements of this state law, and incorporates the entirety of this law into its comments. The state requests that the listing shown on page 1-12 and 1-13 of the DEIS be amended to include the plans and policies indicated by this law. We also request that BLM carefully consider consistency with this state law as it formulates its final decision.

The BLM should not simply ignore this law as a product of misplaced federalism. The state recognizes that BLM retains the ultimate authority for decisions made concerning public lands. It is axiomatic that the BLM may not make direct decisions



concerning state, local government or private land, and that state or local governments may not make direct decisions concerning the public lands. Yet each entity - state government, federal agency or local government - can make decisions that indirectly affect the other's lands. For example, BLM decisions may impede access to state or private lands, thereby affecting the economic use of those lands. Similarly, a decision by state landowners or regulators can affect the management prerogatives on nearby BLM lands. Coordinated planning and consistency review intends to minimize these kinds of conflicts. Consistent planning is a direct outcome of our shared responsibility to provide for the health and general welfare of the people and as stewards of the land.

As part of its responsibility for this shared stewardship, the state legislatively established the criteria and parameters for successful analysis of multiple-use principles applied to the resources of the public lands in the various BLM Field Offices. The state legislation contains both elements of responsibility by state agencies to its own management of resources under its control, as well as policies procedures warranting careful consideration in BLM's consistency review.

The BLM must not dismiss the state plans and policies expressed through this law, or any other state or local plans and policies, by concluding federal concerns obviate the need to foster consistency. The BLM is obligated to examine the state and local plans and policies concept by concept, criteria by criteria, and line by line, if necessary, to determine the extent to which the plans and policies of state and local governments represent a consistent statement of the shared stewardship of the land. BLM must make its plans subject to state implementation of federal laws, such as the Clean Air and Clean Water Acts. BLM must also insure its plans adopt and promote the goals of state plans and policies concerning resources owned by the state in trust for the people or specific beneficiaries, including, for example, water, wildlife, and school trust lands. Finally, BLM's consistency requirement means the BLM must exercise its discretionary decision-making authority for the management of the public lands in concert with the vision for the management of the public lands established by state and local governments through the creation of plans, policies, programs and the like. The State of Utah looks forward to working with the BLM to harmonize state, local, and BLM plans towards the advancement of our shared stewardship responsibility and asks the BLM to consider its statutory responsibility toward consistency in this light

### ***Economic Studies:***

The state, through PLPCO, contracted with Utah State University and the University of Utah to complete a number of economic and social attitude studies regarding the use of and value attributed to public land resources by Utah residents. These studies assess general attitudes of the citizens toward the public lands, off-highway vehicle use on public lands, grazing on public lands, potential Wild and Scenic River designation, and economic impacts of oil and gas exploration and production. Below are short summaries of a number of these studies that are works in progress. We will provide copies of these studies upon completion and ask that you consider this information as you prepare the Final RMP and Final EIS.

Utah State University conducted a statewide survey of state residents, the *Utah Public Lands Study*, during the summer of 2007. One focus of the survey questionnaire involved assessing various ways in which residents engage in economic activities linked to public land resources. Other major purposes involved assessing attitudes toward public lands as part of the residents' quality of life and sense of community, and assessing attitudes and preferences regarding public land management. Preliminary and partial tabulation of results for Garfield, Piute, Sanpete, Sevier, and Wayne Counties are attached as Attachment B. A more complete tabulation and analysis of results for these counties, as well as statewide results, will be submitted to BLM as they are completed.

Preliminary results from Utah State University's *Utah Recreational Off-Highway Vehicle Use Study* shows OHV use becoming increasingly popular, but the number of trips taken per year declining. Recreational activities that OHV users participate in are diverse, including both passive (sightseeing and photography) and active (camping and hiking). Rider motivation includes stress relief and nature appreciation, along with achievement, stimulation, independence and socialization with others. The study also shows economic impacts broken out by direct and total impact to both Garfield and Kane counties as well as by regional gross output, employment, household income, and value-added income. A "Random Utility Model" will be used to measure change in the allocation of trips across counties, measure change in the total number of trips taken by Utah OHV users, measure change in economic value accruing to OHV users and generate trip-distribution information for use in economic impact modeling. Full results will be made available upon completion of the study.

The Utah State University study, *Dependency on and Alternatives to Public Land Grazing by Operators in Utah*, will provide grazing data, including the survey of dependency on the public range, and will be made available upon completion.

The Bureau of Economic and Business Research at the University of Utah has completed an economic impact study of the oil and gas exploration and production industry in the Uinta Basin titled *The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry: Phase I - the Uinta Basin*. This study was followed by *Phase II – Carbon and Emery Counties* study. Similar studies will follow for San Juan and Richfield areas. Although these particular studies do not coincide specifically with the Richfield Field Office Planning Area, the Field Office should consider the information presented in terms of the economic benefits generated in any reasonably foreseeable development scenario discussed in the Final plan. The full Phase I study is attached for your consideration as Attachment C, and the Phase II study is attached for your reference as Attachment D.

In addition to the foregoing studies, a report entitled *Review of the Socioeconomic Analysis in the Draft Environmental Impact Statement Prepared by the USDI-Bureau of Land Management Richfield Field Office* was prepared by Utah State University under contract to the Six County Association of Governments. This study is attached for your



consideration as Attachment E. We ask that you consider these studies as you prepare the Final RMP and EIS.

### ***Energy Permitting and Efficiency:***

The Utah Legislature in 2006 adopted an energy policy requiring a streamlined permitting process to expedite issuance of permits for energy-related projects. Utah has a process to perform this function through its Department of Environmental Quality. The Richfield BLM Office should commit to utilizing this established process in the review of such applications.

Energy efficiency is a concept endorsed by the State of Utah through the issuance of a Governor's Executive Order in April 2006. One of the goals is to achieve a twenty-percent efficiency increase by the year 2015. The state requests BLM commit to either work toward this goal, or start coordinating alternative energy efficiency increases with the Governor's Energy Advisor.

### ***Areas of Critical Environmental Concern:***

The Federal Land Policy and Management Act (FLPMA) requires the BLM to "give priority to the designation of areas of critical environmental concern," which are further defined as areas requiring "special management" to "protect *and* prevent irreparable damage" to "important historic, cultural or scenic values, fish and wildlife resources or other natural systems," or independently, to "protect life and safety from natural hazards." 43 U.S.C. §§ 1711(a) and 1702(a).

The BLM's Handbook further requires that the BLM examine an area for "relevance" and "importance" related to the natural resource values involved as part of the analysis of a possible ACEC. The Handbook, at section 1613.02, provides that the purpose of an ACEC designation is to "protect, and prevent irreparable damage" to resource values, or to "protect human life and safety" from identified natural hazards. The Handbook reiterates the two statutory reasons for considering an ACEC, but slightly alters the statutory language. The statutory requirement to determine special management necessary to "protect and prevent irreparable damage" is altered to read "protect, and prevent irreparable damage" to the identified resources. This difference is a relatively minor point at this juncture, but, unfortunately, immediately after in Handbook section 1613.06, the Handbook states that it is the policy of the BLM to employ ACEC designation when "special management is required to protect important" resource values. Irreparable damage is overlooked in the policy statement.

This is not a trivial point. The statute requires that an ACEC designation is appropriate only if special management is required to both "protect *and* prevent irreparable damage" to natural resources, or, as a second reason, to protect human health and safety. This apparent loss of focus on the statutory rationale for an ACEC becomes important because Handbook section 1613.1 discusses ACEC characteristics. The first subsection (section 1613.11) discusses the need for "relevance" and "importance," and



the second (section 1613.12) discusses the requirement for special management attention. Again, however, the regulatory requirement to discuss the need for special management attention does not focus on the statutory requirement to "protect and prevent irreparable damage" to resources, rather it only speaks to the need to "protect" the important and relevant values.

Additionally, the BLM Handbook, at section 1613.06, indicates it is the policy of the BLM not to use ACEC designations as a substitute for wilderness recommendations. This indicates that BLM will not make any management prescriptions for any ACECs that, singly or in the aggregate, constitute management under the Interim Management Protocol for wilderness study areas, or management essentially equivalent to management under the IMP.

The State of Utah has, by state statute, set out further recommendations for studies related to ACEC designation. The state believes these studies, or a substantial equivalent, are necessary to disclose fully the rationale for and the effects of management prescriptions related to each potential and proposed ACEC. In particular, the state statute limits state support of ACECs to situations where potential and proposed ACECs are "limited in geographic size and that the proposed management prescriptions are limited in scope to the minimum necessary to specifically protect and prevent irreparable damage to the relevant and important values" which cause the BLM to consider the ACEC. To obtain state support, the BLM must analyze the required relevant and important values on a regional basis, analyze the need to "protect and prevent irreparable damage to those relevant and important values" from activities which may occur in the area. The BLM must also explain the need for "special" management for the ACEC and explain how this management is different from normal BLM management and authority, that the protections proposed by the required "special management" do not duplicate or constitute simple restatements of protections afforded by other federal and state laws, and contain other analytical and procedural requirements. *See* Utah Code §63-38d-401(8)(c). As parts of its consistency review, BLM should make every effort to consider and incorporate these factors in its decision.

### ***Grazing, Wildlife and Watersheds:***

The state supports, as a matter of policy, well-planned and managed livestock grazing, and considers the same as an important landscape-scale tool for creating and maintaining healthy watersheds and resources, including healthy habitat for wildlife. The state encourages the BLM to adopt the principle that functionality of the watershed underlies all the resource values of the planning area. The state and BLM are, of course, partners in a major effort to improve the health and functionality of watersheds through the multi-agency efforts of the Utah Partnership for Conservation and Development. To date, many thousands of acres of range and watershed lands have been reclaimed and restored through active efforts and properly managed grazing. Other often-cited examples of the use and value of prescriptive grazing and associated wildlife management are the privately held Deseret Land and Livestock Ranch, and the Hardware

Ranch managed by the state's Division of Wildlife Resources. Flexibility of management practices has been the key to success of these two operations.

The Utah State University study, *Trend Information for the Richfield RMP: Livestock Industry Issues* indicates a downward trend in livestock grazing preference and authorized use in the Richfield Field Office Planning Area. Portions of this study are attached as Attachment F.

Because of the value of grazing, state policy discourages permanent closure of grazing allotments and encourages the reinstatement of suspended AUMs when range conditions permit somewhere within the Richfield FO. Permanent closure precludes using grazing as a management tool for improving watershed health, wildlife habitat, and the economic benefits of livestock production. The state, among other purposes, is supportive of the use of livestock in a prescriptive manner, that is, tactical use of livestock to accelerate progress toward improved rangeland health and the reduction of catastrophic fire risk. The state also believes that AUMs suspended for reasons of rangeland health should be reinstated to the permittee when rangeland conditions permit, and in a manner which accommodates the funding needs for rangeland improvement projects. Also, if beneficial, the AUMs should be amenable to adjustment in the time and timing as discussed next.

The state strongly suggests that BLM support flexibility within the management provisions for livestock grazing time (duration) and timing (season of use) in the Final Plan. Through the Utah Partners for Conservation and Development, the Watershed Restoration Initiative, and the Utah Grazing Improvement Program, the state stands ready as a partner to work with the BLM to rehabilitate resources and improve grazing practices to benefit watersheds, livestock and wildlife. Retaining flexibility in the season of use will greatly aid in the control of undesirable plant species, and in the control of the fuels responsible for catastrophic fire.

In addition, the state encourages the BLM to cooperate with the state grazing permittees and conservation organizations to actively monitor and record grazing use data, wildlife populations and range conditions. The Final RMP should contain and rely on a robust monitoring program so that resource managers and users can communicate, learn, assign responsibilities, and use adaptive management to meet land health objectives.

On a related note, the state believes the BLM should only employ the term "critical habitat" when referring to the legal habitat designations for endangered and threatened species under the Endangered Species Act. The state requests that the BLM use the "crucial habitat" designations mapped by the Division of Wildlife Resources solely as descriptive wildlife habitat designations, not as automatic exclusion zones for other multiple uses. In some instances, active management may be necessary to maintain or enhance habitat values; crucial habitat designation is not intended to preclude such actions. The state also requests that these designations not be altered from alternative to

alternative, as the area is defined based on DWR's wildlife inventories and may be refined or altered by the state as conditions require.

#### *Air Quality:*

The state is concerned about air quality, and has been delegated primacy in the air quality program pursuant to the terms of the Clean Air Act. State concerns are set against a backdrop of an upward trend in ozone in rural parts of the State. In addition, in 2006 the Environmental Protection Agency revised National Ambient Air Quality Standards (NAAQS) for small particulates (PM<sub>2.5</sub>), and has recently proposed revisions to the NAAQS for ozone. These factors suggest proactive efforts between the state and the BLM begin now. As part of these efforts, the state suggests adopting both interim measures and initiating a coordinated approach to assessing and protecting air quality in Utah after the adoption of the Final Richfield RMP. This coordinated approach would include installation of further monitoring stations, collection of further baseline data, and creation of robust modeling programs for analysis of future project proposals.

As an interim measure, the state encourages the Richfield FO to request that oil and gas operators apply best available control technology. We also encourage the Richfield FO to adopt emission standards for compressor engines consistent with the *Four Corners Air Quality Task Force Report of Mitigation Options, DRAFT: Version 7*, June 22, 2007 (Task Force Report). The BLM Farmington Field Office, San Juan Service Center, and San Juan National Forest impose the Task Force's suggested standards as conditions of approval. These standards are 2 g/bhp-hr for engines less than 300 HP and 1 g/bhp-hr for engines over 300 HP. The state encourages the Richfield FO to impose these emission standards as lease conditions for all new and relocated engines, and as conditions of approval for all new APDs. These standards would positively impact air quality, facilitate continued action, and would be consistent with neighboring state jurisdictions.

For the future, the state encourages all agencies - federal, state, and local - to collaboratively identify and address air quality related concerns. The state encourages these stakeholders to come together through an entity such as the Natural Resources Coordinating Council (NRCC), to develop more comprehensive analyses and region-wide modeling, and to assess the impacts of plan-based decisions on air quality in Utah. Pending completion of comprehensive air quality analyses and region-wide air quality modeling, we encourage the BLM to work with stakeholders to research additional interim measures, such as those presented by the Four Corners Air Quality Task Force, to determine which emission mitigation strategies should be required as future lease and application for permit to drill (APD) conditions. The state also requests BLM's assistance with installation of additional air quality monitoring stations. Additional stations will improve our understanding of current pollution concentration levels and facilitate future management.



Specifically, as the Richfield FO makes future planning level decisions and site-specific decisions to implement the Final Richfield RMP, we request that future air quality analyses include:

- Photochemical modeling to evaluate the formation of ozone and secondary particulate matter. Models used for the analysis of ozone and PM<sub>2.5</sub> should include the chemistry module needed to estimate the formation of secondary pollutants, *e.g.*, a photochemical grid model such as the EPA's Community Multi-scale Air Quality model (CMAQ).

- Project evaluations should assume, within the reasonably foreseeable development scenarios, that leasing and exploration will result in full-field development. Modeling should reflect reasonably foreseeable full-field development scenarios.

- Existing emission sources may have coincident impacts. This necessitates a comprehensive understanding and evaluation of emissions from other nearby existing or planned sources.

- Modeling should reflect anticipated worst-case meteorological conditions for each dispersion scenario, *e.g.*, the meteorological condition for high near-field impacts should be different than the meteorological conditions leading to high long-range transport.

- The analysis should assess attainment of all applicable air quality related requirements and standards. Specifically, the evaluation should address all criteria pollutants with specific emphasis on PM<sub>2.5</sub>, ozone, and ozone precursors.

- The state is concerned about the new proposed NAAQS standards for ozone. Volatile Organic Compounds (VOC) and NOX are precursors to the formation of ozone. All sources of the precursors to ozone should be considered in future analysis. Regional haze is also a concern, especially as it affects Class I areas in the Intermountain West.

- The analysis should carefully consider impacts to visual resources and other air quality related values identified by the federal land managers.

#### ***Wild and Scenic River Designation Studies:***

The state acknowledges the requirement for the Richfield Field Office to conduct Wild and Scenic River studies as part of the RMP revision process. Utah law, however, sets forth certain prerequisites for state support of a Wild and Scenic designation, and directs that the BLM ensure appropriate information is developed, disclosed, and used as part of the WSR evaluation process. *See* Utah Code §63-38d-401(8)(a) thru (b). The law indicates, among other things, that river segments proposed for inclusion in the NWSRS should contain water at all times and possess an outstandingly remarkable value which is significant within a physiographic regional context, and that studies of the effects of

designation on uses within the river corridor, as well as upstream and downstream from the corridor, are analyzed and disclosed.

While the state is committed to exploring segments of rivers that may qualify for inclusion in the Wild and Scenic River System, the state balances this commitment against concerns that designation of some stream segments as components of the National Wild and Scenic River System (NWSRS) may jeopardize the ability of local communities, industry, farmers, Indian tribes, and other water users to appropriate and develop water and to get change applications approved in order to meet their future water needs. Specifically, the state is concerned that Wild & Scenic River designations may, among other possibilities:

1. Limit the ability of communities to develop water needed for future growth;
2. Limit additional industrial growth including oil and gas, and minerals development;
3. Limit additional agricultural growth;
4. Reduce funding to the Colorado River Salinity Control Program, or affect agreements already in place for the Endangered Fishes Recovery Program.

In an effort to understand the nature and extent of the effects of wild and scenic river designations, Utah State University conducted a Wild and Scenic River designation study. The study was designed as: (1) a literature review and analysis of the recreation impacts of Wild and Scenic designation, and (2) a literature review and case study analyzing the impact of designation on non-recreational aspects of the economies of local communities and users. Preliminary results indicate: (1) a lack of before and after studies of wild and scenic river designation, (2) anecdotal evidence of a designation effect, (3) one statistical study found no evidence of a designation effect, and (4) various effects on private and public land uses resulting from designation. Complete findings will be available soon. We encourage BLM to carefully consider this information as it prepares the final RMP.

The state is also concerned about suitability findings for those streams where there are significant water diversions upstream of the subject reach, most of which are for irrigation. This is particularly true for the Dirty Devil River and the Fremont Gorge. While federal reserved water rights are not asserted prior to designation, those stream reaches found suitable are managed as if they were designated. This manage-as-if-designated approach has the unfortunate and inappropriate potential to cause managers to believe a *de facto* federal reserved water right exists for those reaches, and thereby impact the future management and utilization of valid existing water rights above the reaches. No federal reserved water right can be created until Congress acts to designate river segments as components of the National Wild and Scenic River System. The state believes that this suitability determination phase is the proper time to begin negotiations

concerning the extent of any future federal reserved water rights. As a minimum, the State Engineer requests the BLM to catalog all valid, existing water rights that may be affected by designation as part of the Final EIS.

Additionally, the state is concerned that the DRMP/EIS does not state, in a full and complete manner, the authority for protection of river segments while studies pursuant to section 5(d)(1) of the Act are underway, and protection until Congress may act upon any recommendations made in planning documents pursuant to BLM planning authority. The 1997 Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council indicates that river segments found eligible or suitable for inclusion in the NWSRS through agency planning processes "[a]re not protected by the [Wild and Scenic Rivers] Act" itself from projects which may affect the "[r]iver's free-flowing characteristics and other identified values." The report explains that an agency which proposes a river for inclusion in the NWSRS "[s]hould, within its authorities, protect the values that make the river eligible or suitable." See Wild and Scenic Rivers Act: Section 7, Technical Report of the Interagency Rivers Coordinating Council, Oct. 2004. Also, according to Section 13(f) of the Wild and Scenic Rivers Act (16 USC§ 1284(f)) management of a river segment found suitable for inclusion in the NWSRS cannot interfere with access to sovereign lands found within the proposed segment. Further, BLM Manual section 8351.53 delineates what actions the BLM may take to protect a river segment found suitable for inclusion in the NWSRS, after due process and public notice.

The state finds the discussion regarding potential recommendations for additions to the NWSRS in the Draft RMP and EIS does not fully satisfy the requirements of federal or state law, or BLM policy and direction. The state believes it is imperative that the BLM properly disclose the reasons and rationale for determinations of suitability for proposed additions to the NWSRS, and to fully meet the requirements of state and federal law in doing so.

#### ***Inventory and Proposed Management of Areas with Wilderness Characteristics:***

The State of Utah has reviewed BLM's inventory of and proposed management for lands identified as possessing wilderness characteristics. The state does not believe that BLM has authority to create a category of management based solely on the characteristics of wilderness. The characteristics of wilderness, or its constituent elements, were first recognized by the Wilderness Act of 1964 and extended to the BLM in section 603 of the Federal Land Policy and Management Act of 1976. The authority within section 603 has now expired by its own terms. The state recognizes that recent court decisions affirmed BLM's authority to inventory for wilderness characteristics, and have required the BLM to consider new information about these characteristics in its documents prepared under the National Environmental Policy Act. These decisions do not, however, consider or affect the BLM's statutory authority for management policies, provisions or categories on the BLM lands. The state cautions BLM against an overly broad reading of these decisions. Management authority must be derived solely from the specific provisions of the Federal Land Policy and Management Act, (e.g. Areas of Critical Environmental Concern) or other specific federal legislation, and it is incumbent



upon the BLM to carefully define its detailed legal rationale and reasoning for its proposed management policies, provisions and categories.

The State of Utah is committed to outdoor recreation, including primitive and non-motorized recreation, as activities of great interest to the residents of Utah, and as economic drivers. The state supports retention of appropriate areas in their primitive, semi-primitive, or rural state, after due consideration and in compliance with legal requirements. The state looks forward to working with the BLM to find appropriate management prescriptions and structures to protect primitive, semi-primitive and rural areas for the use of its citizens, and those of the nation.

Thus, the state asks BLM to provide a detailed explanation of the rationale and authority for managing lands solely because of wilderness characteristics. This explanation should discuss why such management does not circumvent the provisions of the statutorily required wilderness review process. Further, the BLM should fully disclose the rationale and evidence supporting a changed finding for those lands found not to have wilderness characteristics in the first survey in the late 1970s and early 1980s. Such rationale and evidence must contain a discussion of the detailed criteria used, nature and extent of the review, detailed field notes, and all other relevant evidence and legal reasoning. *See* 43 U.S.C. § 1701(l) and Utah Code § 63-38d-401(6)(b). As the Richfield Field Office moves forward, the state encourages BLM to take great care to read the court decisions carefully, and to comply with the Settlement Agreement resolving *Utah v. Norton*, No. 2:96CV0870 B (D. Utah, Sept. 9, 2005). In particular, BLM should not exercise its authority under section 202 of FLPMA in a manner that establishes, manages or otherwise treats public lands as wilderness unless those lands were congressionally designated as wilderness or were previously designated as wilderness study areas pursuant to section 603 of FLPMA.

In addition to these cautions, the state requests that, in weighing management options for the Final RMP, BLM carefully consider recommendations submitted by local government and not manage lands to protect wilderness character where such management would, in the opinion of local governments, be contrary to the interests of local residents. BLM should also consider the existence of inholdings and valid existing rights, including school trust lands, and not manage areas for protection of wilderness characteristics where development of inholdings or valid existing rights may compromise management of the area.

The state understands that several counties will be submitting information concerning the areas BLM asserts contain wilderness characteristics. The state strongly suggests BLM give this new field information serious consideration prior to completion of the Final RMP. More detailed state comments, and comments specific to individual areas identified as possessing wilderness character, are provided in Attachment A, below.

#### ***Utah's Trust Lands and Land Tenure Adjustment:***

Utah's School and Institutional Trust Lands Administration (SITLA) is an independent state agency responsible by law for management of lands granted to the

State of Utah pursuant to the Utah Enabling Act, Act of July 17, 1894, 28 Stat. 109, for the financial support of Utah's public schools and other state institutions. The United States Supreme Court has referred to this Enabling Act land grant as a "solemn compact" between the United States and the State of Utah that obligates the United States to take into consideration the purposes of the grant when managing federal lands.

The Utah Enabling Act and the Utah Constitution obligate the state to act as a trustee in managing school trust lands. Among the fiduciary duties imposed on SITLA by this trust is the duty to manage trust lands in the most prudent and profitable manner possible, and not for any purpose inconsistent with the best interest of the trust beneficiaries.

SITLA manages an estimated 380,083 acres of surface and 468,871 acres of mineral lands within the Richfield Planning Area (RPA), representing approximately seven-percent (surface) and 8.6-percent (mineral) of all lands in the RPA. *See* RMP/DEIS at Table 1-1. Most of these state trust lands are comprised of numbered sections 2, 16, 32 and 36 in each township, representing the grant of in-place school sections made by the Utah Enabling Act. State lands also include lands acquired from the federal government in a land exchange. The significance of the checkerboard pattern of land ownership is that, because most trust lands are surrounded by BLM lands, planning decisions made by BLM with respect to rights-of-way, withdrawals from mineral leasing, special designations (*e.g.* ACECs, management for wilderness characteristics, etc.) and other determinations inherently impact the state trust lands making them an island within the surrounding BLM lands. BLM's decisions on how to manage its lands directly affect Utah's ability to manage state trust lands to provide revenue for public schools and other beneficiary institutions.

Conversely, management by SITLA of state trust lands within special designations can directly affect the ability of BLM to achieve management objectives. SITLA is not obligated by law, for example, to manage its lands within BLM areas managed for wilderness characteristics or ACECs for environmental protection. SITLA development of inholdings consistent with SITLA's governing mandate may substantially defeat the purpose of the special designation. For this reason, it is in the best interests of the United States as well as the State of Utah that the Final RMP create a robust and effective program for land tenure adjustments.

The BLM Manual recognized BLM's need to give priority to state-federal land exchanges:

The BLM recognizes that resolving these land ownership and management issues is an important public purpose *and gives priority to the exchange of state trust lands out of areas designated by the federal government for special purposes.*

BLM Manual H-2200-1, Chapter 13, B. (2005) (emphasis added).

The state believes the Draft RMP fails to address adequately these two major issues: The impact of BLM management decisions on state trust lands, and the need for a substantially more robust program for land tenure adjustments between the BLM and the State of Utah. BLM has an obligation to include in its planning an effective and timely means of addressing the impact of federal land actions on in-held school trust lands.

#### ***Travel Management/Freight Analysis:***

Under *Utah v. Andrus*, 486 F. Supp. 995 (D. Utah 1979), the State of Utah is entitled to reasonable access across BLM lands to all school trust lands, including those within WSAs. The RMP should specifically state that: (1) continued motorized administrative access on non-designated routes providing access to trust lands will be permitted to SITLA, its permittees, grantees and successors, notwithstanding any closure to the general public, to the extent such motorized access is currently available; (2) SITLA, its permittees and grantees may undertake reasonable maintenance activities to preserve and improve existing access across BLM lands, after consultation and appropriate environmental review by BLM and consultation with local governments as necessary; and (3) existing routes that are the sole access to state trust lands will not be closed and/or reclaimed without full BLM consultation with and approval by SITLA and the State.

Each of the counties in the Richfield FO has submitted a transportation map laying out its transportation system on BLM and other lands. The state urges the BLM to consider this information, and to make the BLM's transportation plan for the Richfield FO consistent with the desires of each county to keep roads and routes open for the various uses, as indicated. This request is independent of any consideration of R.S. 2477 issues.

The state encourages the BLM to prepare and consider a detailed transportation system use analysis. This analysis should be similar to the Utah Department of Transportation's Analysis of Freight Traffic Associated with Oil and Gas Development in the Uinta Basin (Oct. 2006). The U.S. Forest Service is utilizing such an approach in assessing the environmental impacts of oil and gas development on National Forest System lands throughout the state. UDOT's analysis estimates the amount of truck traffic involved in developing a new oil or gas well, specifically addressing truck-in of construction equipment; truck-in of drilling related materials such as water, drill mud, well casings, etc.; truck-out of the drill rig; truck in of the completion rig; truck-in of other support facilities and materials; and truck-out of waste removal. Such an analysis provides important information about heavy truck traffic volumes that are necessary when evaluating impacts to multiple resources, including but not limited to noise, air quality (e.g. re-entrained road dust) and wildlife.

#### ***Coordination between Land Managers and Reasonably Foreseeable Development:***

As part of the planning process the Richfield Field Office has met with other agencies with land management jurisdiction within or adjacent to the Richfield planning



area. We encourage the Richfield Field Office to continue meeting with Park Service, Forest Service, local government, and tribal government partners and to use these meetings as an opportunity to harmonize management across jurisdictional lines. While we recognize the field office's efforts to date, the DEIS does not address consistency between neighboring jurisdictions' management objectives. We encourage the BLM to analyze the management objectives applicable to adjacent lands. We also encourage the BLM to disclose, as part of the Final EIS, specific areas of management conflict and steps the Richfield Field Office will take to resolve conflicting management objectives.

Neighboring BLM field offices are currently preparing RMPs and have Reasonably Foreseeable Development Scenarios (RFDS) for their plans. These RFDSs indicate how much development may occur over the lifetime of the plans. Other federal agencies within the region may have RFDSs or similar projections for development on their lands. Reasonably foreseeable future actions captured in these RFDSs should be identified and considered as part of the analysis. We also encourage the BLM to contact all state, federal, and tribal agencies and collaboratively identify all other significant reasonably foreseeable activities that are likely to impact resources within the Richfield planning area. All such actions should be identified and considered in the analysis. Such an analysis is especially important for air quality related values, wildlife habitat, and socio-economic impacts.

The scope of activities anticipated under the Reasonably Foreseeable Development scenario (RFD) for fluid minerals needs clarification. The RFD does not clearly state whether its projections are limited to exploration, or include possible subsequent development based on likely economically recoverable discoveries. We encourage the BLM to treat discovery and production as reasonably foreseeable consequences of leasing and exploration, for purposes of consequences evaluated under NEPA.

#### ***Real Property - Water:***

BLM asserts it will honor all valid, existing rights. However, it appears that this statement may only apply to oil and gas, minerals, and grazing; no mention is made of water rights. Under Utah law, approved and perfected water rights are real property. BLM actions may affect the value of this real property. Because of this, the State Engineer recommends that the BLM consider the impact its actions may have on water rights in general and non-BLM water rights in particular. This recommendation is particularly important because the right to use water is the underpinning of most economic, environmental, and social activities. If any valid, existing water right will be negatively affected by BLM actions, then possible mitigation and compensation actions should be discussed.

#### ***Factory Butte:***

The state is aware of and has made a preliminary review of a proposal by Wayne, Sevier and Garfield Counties concerning OHV use in the Factory Butte area. Based on

this early review, the state supports the proposal, and requests the BLM give it serious consideration for adoption as part of the Final RMP. A copy of the proposal given to the state is attached as Attachment G.

***Oil and Gas Potential:***

Given the oil and gas leasing efforts by the BLM and others in the Richfield FO, and the recent discoveries of oil and gas in Sevier County, the state requests that the BLM consider and adopt a reasonable program for seismic and other exploratory work in the Richfield FO, but especially in Sanpete, Wayne and Piute Counties.

In conclusion, thank you for the opportunity to comment. The state looks forward to continuing to work with the Richfield Field Office as a Cooperating Agency. Further detailed comments and the various studies mentioned are attached. Please feel free to contact me with any questions or concerns about these comments, or the state's continuing desire to work with the BLM on the Final Resource Management Plan for the Richfield Field Office.

Sincerely,



John Harja  
Director

cc: Richfield Field Office

## **ATTACHMENT A**

### **Further State Concerns and Comments**

#### ***Non-WSA Lands with Wilderness Characteristics:***

According to Table 4-10, the Preferred Alternative would include significantly more miles of designated routes within non-WSA lands with wilderness characteristics than any other alternative. This is unusual given that two other alternatives propose significantly more miles of designated routes. *See* RMP/DEIS at Table 2-1. Please confirm and clarify that the disclosures contained in Table 4-10 are accurate.

#### **Comments Specific to Individual Areas Identified as Non-WSA Lands with Wilderness Characteristics:**

The following comments regarding non-WSA lands analyzed for the existence of wilderness characteristics reflect the state's review of background documents provided by the Richfield Field Office. These documents are generally entitled "Evaluation of New Information Suggesting that an Area of Public Lands has Wilderness Characteristics" or "Wilderness Inventory Update." The state will refer to both forms simply as the "2007 review forms." The following comments are specific to individual nominated areas.

In the 2007 review form for "A total of 76 individual site-specific comments were addressed" (76 comments), BLM references a number of SUWA comments that are identified by letter. These comments are not provided or explained. Please include or discuss SUWA's comments and BLM's response.

The 2007 review forms do not include maps, greatly complicating any attempt to determine locations of the proposed areas. The Richfield Field Office is the only field office reviewed to date that has not provided maps. The absence of maps could be especially problematic if BLM concluded that some but not all of an area possesses wilderness character. Please make maps of these areas available.

The 2007 review forms posted on the Richfield Office's web page are not signed. Please confirm whether the Field Manager has made a final decision with respect to these forms and the evaluation they contain.

Several of the determinations conclude that parcels were previously determined to possess wilderness characteristics. It is counterintuitive that petitioners would renominate an area already determined to possess wilderness characteristics. Please clarify whether the boundary of the renominated areas are identical the boundaries of the previously analyzed areas. If so, please explain the basis for the renomination and reevaluation.



Kingston Ridge:

BLM concludes "lands are in a substantially natural condition, with opportunities for primitive recreation and solitude, and thus have wilderness characteristics present." The RMP/DEIS defines non-WSA lands with wilderness characteristics as lands having the "appearance of naturalness and outstanding opportunities for solitude or a primitive and unconfined type of recreational experience. See RMP/DEIS at 3-58. This is consistent with the Wilderness Act. See 16 U.S.C. § 1131(c). The state objects to any determination of wilderness characteristics that does not apply the appropriate standard.

The 2007 review form indicates "BLM has not done a wilderness inventory of this area previously" and the list of reference material does not indicate that BLM conducted a site visit or reviewed aerial photographs of the area. However, determination appears based in part on "documentation from prior BLM resource inventories, aerial photographs, field observations, maps, etc." Please clarify whether BLM visited the area as part of the most recent review and what other information it considered.

The 2007 review form mentions the "casual use" of mining claims. Please explain what this means.

Flat Tops:

The 2007 review form states: "Based on the information SUWA provides, the BLM concludes there is a reasonable probability the Flat Tops proposed wilderness unit 'may have' wilderness character." A reasonable probability determination of wilderness character is an insufficient basis from which to impose management stipulations. The state objects to any planning decision that includes measures to protect wilderness character without first definitively determining that the area in question does in fact possess wilderness character.

76 comments / Fremont Gorge:

BLM concluded that the lands identified in SUWA's "comment I" are "likely to have wilderness characteristics." The state objects to any planning decision that includes measures to protect wilderness character without first definitively determining that the area in question does in fact possess wilderness character.

76 comments / Limestone Cliffs:

BLM concluded that the lands "may to have wilderness characteristics." BLM also notes that the areas "have opportunities for both solitude and primitive recreation." The state objects to any planning decision that includes measures to protect wilderness character without first definitively determining that the area in question does in fact possess wilderness character. Likewise, the state objects to identification of wilderness characteristics without establishing the requisite "outstanding opportunities for solitude or a primitive and unconfined type of recreation."

76 comments / Mount Pennell and 76 comments / Ragged Mountain:

BLM concluded that the lands covered by SUWA Comment A are "likely to have wilderness characteristics." Utah objects to any planning decision that includes measures to protect wilderness character without first definitively determining that the area in question does in fact possess wilderness character.

Labyrinth Canyon Extensions:

The 2007 review form states both that the area was previously found "not to possess wilderness characteristics and dropped from further study," and that the "parcel has been already found to possess wilderness characteristics." Please reconcile these apparently contradictory statements.

Under the heading "appearance of naturalness," BLM notes that there are no mineral claims or oil and gas leases. Please clarify the extent to which the Richfield Field Office considered the existence of undeveloped valid and existing rights with respect to wilderness characteristics.

Phonolite Hill:

BLM recognizes a "difference of opinion between BLM and SUWA regarding the significance of the intrusions and how they affect the appearance of naturalness." While BLM concurs that a "significant portion of the area is likely to have the appearance of naturalness," it does not otherwise attempt to resolve the difference. Please clarify whether the determination that the area has wilderness characteristics applies to the entire area or not. Please also clarify what steps BLM undertook to conclude that the areas "likely" to possess naturalness are in fact natural in appearance.

Please explain how BLM proceeded to conclude that the area possesses wilderness character despite concluding, "primitive recreation potential exists at some level, not just at an outstanding level." We understand a wilderness characteristics determination to require outstanding opportunities for a primitive and unconfined type of recreation.

In its discussion of supplemental values, BLM identifies springs and riparian corridors that are in a "properly functioning condition." The state would like to see all public lands obtain properly functioning conditions. Please clarify why satisfaction of this management objective is a supplemental value worthy of consideration in the wilderness characteristics determination.

Pole Canyon:

The 2007 review form indicates, "the area(s) in question (or a significant portion(s) of) is likely to have wilderness characteristics." However, the explanation

appears to conclude otherwise. Please clarify BLM's conclusion and the standard applied to determine existence of wilderness characteristics.

The 2007 review form also notes that this area is 4,700 acres in size and concludes that adjacency to an inventoried RARE II area is sufficient to satisfy the minimum size requirement. The 2007 review form for the Wildcat Mesa Extension appears to apply a different standard, noting that BLM considers only adjacent lands "administratively endorsed for wilderness management." Please clarify whether adjacent National Forest System lands are administratively endorsed for wilderness management. If not, please explain the apparent difference in standards.

*Rock Canyon & Sweetwater Reef:*

The 2007 review form indicates, "there is a reasonable probability that the area(s) in question (or a significant portion(s) of) is likely to have wilderness characteristics." The form also notes that BLM believes that further consideration of the wilderness character of these areas is warranted. Please explain the conclusion that this area does possess wilderness character in light of the apparently incomplete information.

*Rocky Ford:*

The 2007 review form discusses SUWA's proposal but does not meaningfully discuss BLM's review of the proposal. The list of referenced material does not include aerial photos and the text does not mention site visits. Please clarify the steps taken by BLM to determine the existence of wilderness character in this area.

*Wild Horse Mesa:*

The 2007 review form indicates, "there is a reasonable probability that the area(s) in question (or a significant portion(s) of) is likely to have wilderness characteristics." Please clarify the process for determining what portion(s) of the proposed area actually have wilderness character.

*Wildcat Mesa Extension:*

The 2007 review form does not include the acreage for the subunits considered, precluding verification that the proposed units satisfy the 5,000-acre size requirement. Please provide this information.

BLM discusses mineral claims and oil and gas leases. Please clarify the extent to which the Richfield Field Office considered the existence of undeveloped valid and existing rights with respect to wilderness characteristics.

Units B and C are described as possessing opportunities for solitude as well as opportunities for primitive and unconfined recreation. Please clarify whether these opportunities rise to the requisite "outstanding" level.



It appears that a previously approved ore road will bisect Unit C. It also appears that the BLM is deferring its determination of wilderness character to the RMP EIS. This would result in a management decision absent the prerequisite inventory. BLM should not forego this important preliminary step

#### ***Water Quality & Riparian Areas:***

Under all action alternatives, BLM would maintain buffers around natural springs and riparian areas but allow disturbance or occupancy where: "(1) there are no practicable alternatives, *or* (2) all long-term impacts can be fully mitigated, or (3) the activity will benefit and enhance the riparian area." RMP/DEIS at pp. 2-13 and 2-16 (emphasis added). Natural springs and riparian areas are critical resources for livestock and wildlife; they can also play a critical role in protecting water quality for agricultural and domestic supply. While the state recognizes the importance of protecting natural springs and riparian areas, we also recognize that there may be situations where an absolute prohibition on activity within a buffer area may be neither feasible nor necessary. Consistent with this recognition, we encourage the BLM to revise management around natural springs and riparian areas to allow disturbance or occupancy within a buffer only when: (1) no practicable alternative is available *AND* all long-term impacts will be fully mitigated, or (2) the activity will benefit and enhance the spring/riparian area.

We also encourage BLM to modify management requirements around springs and riparian areas to allow site-specific buffer adjustment to reflect geology or topography. For example, where topography between the spring/riparian area and proposed development would direct surface flows away from the spring and where geologic conditions would prevent sub-surface interference or contamination, the Field Office Supervisor should be able to authorize a waiver of this stipulation.

#### ***Visual Resource Management:***

BLM's Information Bulletin 98-135 discusses the use of the Visual Resource Management system within the land-use planning efforts of the BLM. The IB indicates, "VRM should not be used as a method to preclude all other resource development." Instead, VRM and visual values should be considered in the decision making process along with all other resource needs. The IB also indicates the VRM Contrast Rating Process "should not be viewed as a means to preclude development, but rather as a design tool to assist management in the minimization of potential visual impacts." Further, BLM's Manual, section 8400, discusses the use of VRM in the Resource Management Plan Process. Section 8431.06 states the approved VRM objectives for each RMP "shall result from, and conform with, the resource allocation decisions" made in the RMPs. Finally, BLM's Planning Handbook, section H-8410-1 discusses the use of VRM inventory classes. The section states "inventory classes are informational in nature" and "do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities. . . . The assignment of visual management classes

is ultimately based on the management decisions made in the RMPs." The state objects if the Draft RMP does not make information supporting the VRM inventory class determinations proposed by the BLM available for review. The state also objects if the rationale for each VRM management class is not presented, or if the impact on resource uses is not fully disclosed in the analysis of impacts. The state has concerns that the BLM's identification of VRM inventory classes has led to a self-effectuating class protection scheme, rather than a source of information considered within the proposed resource use allocation schemes within each of the Draft's alternatives.

With this in mind, it appears the disclosure of VRM classification under the No Action Alternative is misleading. The No Action alternative reflects no change in current management direction. *See Forty Most Asked Questions on CEQ NEPA Regulations*, 46 Fed. Reg. 18026, 18027 (Mar. 23, 1981). As BLM notes on pages 3-28 and 4-96, current management direction is to manage WSAs as VRM Class I. BLM should revise the EIS to reflect current management direction. As written, the RMP/DEIS under-represents current Visual Quality Objective (VQO) Class I management by 446,900 acres. This results in inaccurate characterization of the change from current management practices to management occurring under each of the action alternatives. Overall, the visual resource discussion would be much stronger if BLM identified key areas and foreseeable impacts to those areas under each action alternative.

Table 2-8 indicates that right of way grants would be managed as VRM Class IV. The RMP/DEIS does not identify existing right of way grants or major utility corridors. Please identify major existing right of way grants and utility corridors, and discuss the impact of applying Class IV VQOs over other management prescriptions.

### ***Insect Management:***

Table 2-5, comparing vegetation related management decisions across alternatives, states that under alternatives C or D, BLM would not act to control insect pests. We understand that these two alternatives emphasize conservation values over commodity production. However, as forests throughout the west suffer from bark beetle and other insect pests, a decision to turn a blind eye to potential insect threats appears misplaced. Conservation is not at odds with protecting ecosystems from invasive insects. To the contrary, an alternative emphasizing conservation should foster long-term ecosystem health. We encourage BLM to consider what steps can be taken consistent with the themes of alternatives C and D, and incorporate such steps into the final decision.

The differences in management between alternatives N, A, and B appear illusory. All three alternatives call for coordinating with federal, state, and local partners to address insect pests. While Alternative C expressly mentions considering an economic threshold in deciding which lands to treat, fiscal realities make this an implicit consideration for all alternatives. We encourage BLM to clarify how management would substantially differ across alternatives, if that is BLM's intent.

### ***Vegetation:***

Page 4-458 notes that approximately 10,000 acres per year were mechanically treated in recent years. Alternatives C and D anticipate treating 26,000 acres annually while alternatives A and B anticipate treating 73,600 acres annually. *See* RMP/DEIS at 2-5. Please clarify whether the acreage disclosed on page 2-5 is limited to mechanical treatments, and if not, the estimated percent of treatments that will be mechanical in nature. In light of what appears to be a significant increase in vegetation treatment, please clarify changes in necessary staffing levels.

Table 2-12a proposes to treat a significant amount of Ponderosa Pine forest – up to 171,140 acres under alternatives A and B. Please clarify what treatments BLM would utilize for Ponderosa Pine, and the need for this level of treatment.

Page 4-458 provides a per-acre cost estimate for mechanical vegetative treatment. Please provide a per-acre cost estimate for wildland fire suppression.

### ***Grazing:***

Alternative B contains some issues needing clarification. The "Adaptive Management" section (2.4) states: "Land use plan level decisions are not subject to Adaptive Management." In general, this is accurate; however, the proposition may establish limits that could be important to timely management decisions. Please consider alternative language.

The state agrees with the intent of the vegetation section (2.6.1.4.) so long as it clearly indicates grazing is part of the biological tool mentioned. We recommend including grazing as one of the tools defined for managing vegetation.

In section 2.6.1.9., BLM provides a description of using grazing to improve wildlife habitat. Please clarify the section stating "authorize livestock grazing on only a non-renewable basis." Appropriate language may allow renewable grazing which could accomplish the same goals and provide an incentive for the producer to continue to manage for wildlife habitat values.

Section 2-10 specifically deals with the management of the Henry Mountain Bison and Mule Deer. Alternative B states, "[d]evelop a habitat management plan (HMP) for bison, mule deer and other big game species within the Henry Mountain area in consultation with UDWR." It is the state's expectation that the Utah Department of Agriculture and Food's Grazing Improvement Program (UDAF/UGIP) and the Public Lands Policy Coordination Office will also be involved as a cooperating agency in this planning.

In section 2-12 - "Hazardous Fuels Reduction," grazing should be specifically listed as a tool to accomplish this goal. Prescribed grazing is a powerful tool for fuels management outside of the permitted season of use.



In section 2.6.2.2—Livestock grazing, Alternative B—BLM states, "Use livestock grazing to enhance ecosystem health or mitigate resource problems (*e.g.*, noxious/invasive weed control, hazardous fuel reduction) where supported by site-specific environmental analysis. The state supports this proposition and looks forward to cooperating with BLM in conducting site-specific analyses.

The RMP/DEIS discloses total AUMs within the Field Office, but not the number of AUMs associated with each allotment. As written, it is not clear whether alternatives B, C, and D would hold permitted use constant for each allotment, or whether reallocation of AUMs between allotments would occur without changing the overall number of AUMs. We encourage the Richfield Field Office to discuss range condition, changes in active use, as well as changes in and permitted use for each livestock grazing allotment as other field offices recently did in their Draft RMPs. We also encourage BLM to address any discrepancy between permitted and active AUMs for each allotment, indicating whether the difference reflects suspension due to range condition, voluntary non-use, lack of commercial interest, or other reasons.

Chapter three of the RMP/DEIS, p. 3-65, indicates that an interdisciplinary team made up of BLM employees conducts watershed assessments and that these watershed assessments determine whether the Standards for Rangeland Health are being met. Please clarify how many watersheds were assessed and their condition with respect to the four identified standards. If watershed assessments have not been completed, please discuss BLM's schedule for conducting assessments.

### ***Historical Resources:***

These comments are provided under the National Environmental Policy Act and should not be considered Utah SHPO comment under section 106 of the National Historic Preservation Act. We anticipate further consultation regarding more specific effects to cultural resources under the National Historic Preservation Act when the Final RMP is prepared.

We note and appreciate the efforts to conduct proactive resource identification and to prioritize cultural resource inventory areas within the plan and under section 110 of the National Historic Preservation Act. We suggest that the BLM develop a specific ongoing program designed to identify and target identification efforts under section 110 of the National Historic Preservation Act. Such a program could include taking input from the public on potential priority areas and balancing identification needs with public, tribal, development, and resource interests. We recommend that priorities include potential heritage tourism development in addition to more typical resource investigation and protection efforts. Under such a flexible strategy, identification efforts could better respond to public needs and interests. We recommend that the BLM commit to developing a specific and measurable procedure for funding, identifying, and conducting such resource identification efforts, due to the overall benefits of these efforts for future plans and actions.

We feel that the effects analysis for cultural resources within the DEIS could be significantly enhanced and strengthened by additional analysis techniques. Areas to be examined could include: Bull Creek Archaeological District, Horseshoe Canyon South WSA, the Trough Hollow area, the Dirty Devil River area, the Fremont Gorge/Cockscomb area, the Horseshoe Canyon area, the Quitchupah archaeological district area, the No Man's Canyon area, the Robbers' Roost Canyon area, the Fish Creek area, the Maidenwater Creek area, Poison Springs Canyon, and other areas specified as potential National Register nomination areas. In addition, the state recommends the BLM check to ensure that other potential areas of high cultural resource densities or values are identified and examined prior to ground-disturbing activities. These may include:

1. Areas within the Richfield FO with high cultural resources densities that stand out even relative to other areas of high cultural resource densities. These areas often pose particular challenges for multiple resource management. Identifying these areas and conducting specific analyses should assist the BLM in making management decisions that will result in fewer resource conflicts during the life of the plan.
2. Areas within the Richfield FO where individual cultural resources or particular cultural resource groups have aspects of significance or values that include the overall setting and feeling of the resource(s). Examples may include dense rock art concentrations, Ancestral Puebloan architectural sites, historical homesteads, cemeteries, mining, and ranching sites and historic roads/trails.
3. Areas and resources within the Richfield FO that tribes or the public have identified as having particular heritage values.

Techniques to identify these resources during the implementation of the Final RMP could include the following:

1. Utilize GIS data to identify areas with known site densities exceeding one standard deviation of the mean site density for inventoried areas.
2. Search the existing site database for named sites, as such sites are often more likely to represent significant sites.
3. Search the existing site database for rock art sites, architectural sites, or any other site types that have potential to be eligible to the National Register of Historic Places for reasons of setting, feeling, and/or association in addition to data potential.
4. Utilize historic background research to identify known or potential historically significant townsites, mining districts, roads/trails, and individual homesteads.

Additionally, we are aware that both recreation and travel management (including OHV management areas and designated routes) often pose particular challenges for cultural resource management. The RMP acknowledges potential impacts in the analysis in Chapter 4. Therefore, we suggest that the BLM specify in the RMP the subsequent development of specific cultural resource management plans (or a single plan), or use of programmatic agreements, for responding to recreation and travel occurring in the Richfield FO. These plans or agreements could incorporate the existing proposals for monitoring or targeting field inventory of cultural resources in recreation areas and travel corridors to identify issues and develop processes for resolving any potential resource conflicts. The plans could also provide for means of effective public input into determining areas where recreation or travel and cultural resources could be managed for mutual benefit, such as potential heritage tourism development.

We have concerns about the designation of cultural resource site use allocations in the proposed alternatives. Although we recognize that such designations are required of the BLM, our concern is with stipulating a particular designation for an entire class of sites (*e.g.* assigning all "Temporary Camps" to "public use" or "scientific use") without consideration of the nature of each individual site.<sup>1</sup> Such designation fails to consider the individual characteristics of sites within each class, and it is very easy to visualize situations where one or more of the stipulated designations would be either inappropriate for a given site or potentially harmful. Furthermore, under the preferred alternative, the vast majority of sites are allocated to scientific use, with little opportunity to designate sites appropriately for public use. This appears to cut the public out of the enjoyment and use of archaeological and cultural sites in the Richfield FO area. No other BLM office has attempted such a designation. Instead, most have simply stipulated general goals for percentages of sites assigned to each category. We recommend that the Richfield FO adopt the allocation technique (assigning percentages) used by other BLM offices.

Regarding the Dirty Devil SRMA, which lies in an area with a high density and quality of cultural resources, we strongly recommend that the RMP require the future development of baseline studies, monitoring, and affects assessment for the Dirty Devil SRMA. Un-monitored recreation, including non-motorized, could result in impacts to the sites in these areas. We urge the BLM to require that baseline surveys and studies be completed for heritage resources in these areas, followed by regular monitoring, with provisions for responding and adjusting management should impacts become apparent to the sites in these areas.

We note that the area around the Bull Creek Archaeological District is shown as open to fluid minerals leasing under all or nearly all of the alternatives. However, in the cultural resources section this area is listed as closed to surface disturbance for all alternatives. Leasing carries the strong implication that the BLM will allow some development (*i.e.* surface disturbance) of the lease, even if only a single well, in a leased

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<sup>1</sup> Table 2.6a identifies various resource site use allocations that would apply to different site types. This table does not provide any explanation of the terms used or what would be allowed under "public use," "scientific," "discharged," or any other allocation. Please explain what these allocations provide and how they would be implemented.



area. Thus, allowing leasing in the Bull Creek Archaeological District appears to create inconsistency between the alternatives. We recommend that the final plan resolve this discrepancy.

The impacts analysis for leasing Minerals and Energy in the cultural resource section of Chapter 4 discusses potential impacts only from seismic operations. We recommend that the discussion be made parallel to all the other BLM RMPs and discuss the other potential impacts from leasing, such as drilling or well development.

The impacts analysis in the cultural resource section of Chapter 4 correctly identifies the potential impacts of a number of management decisions on cultural resources. These include potential impacts of designating routes (OHV), of dispersed camping within 150 feet of designated routes (recreation), vegetation treatments, and of livestock grazing (grazing). Although the RMP rightly notes that the effects are difficult to assess, can be less than other types of impacts, and may in some cases simply be continuations of existing effects, the RMP also rightly notes that the decisions have the potential to cause adverse effects. These potential adverse effects may need to be addressed via mitigation during consultation under section 106 of the National Historic Preservation Act for the RMP.

### ***Parks and Recreation:***

Under the section for Recreation Decisions, Table 2-16, page 2-63, the DEIS addresses issues with "Criteria for Vending." We were unable to find a definition of vending and would like to know what constitutes vending with respect to this plan. Vendors and concessionaires are important to the success of State Parks. We do not understand why the BLM in alternatives B, C, and D wishes to restrict vending. For instance, Alternatives C and D disallow vending at organized events, does this mean an event could not sell a T-Shirt memorializing it? Please clarify. The state recommends the BLM define vending and remove the proposed restrictions, but keep the proposed action statement of authorizing vending on a case-by-case basis.

**1. OHV use around camping areas and trailheads:** A significant problem facing all public land managers is the intense and indiscriminate OHV use around dispersed camp areas and some trailheads. Enforcing closures in these areas is very difficult. A model for managing this type of use exists on the Manti-La Sal National Forest in Lake Canyon. Designated routes called training trails offer a significant length of sustainable trail within a confined area that provide the experience these young riders are seeking. Off-trail riding has become almost non-existent since these trails were put in place.

**2. OHV rights-of-way across SITLA properties:** Many designated OHV routes cross properties owned by SITLA. To avoid having these routes closed in the future by the sale of these lands, BLM should continue to purchase rights-of-way to be placed in public ownership. Programs and funding are in place to accomplish this goal. The RMP should recognize this opportunity.

**3. North Hatch Canyon The Big Ridge Area:** (Township 31 South, Range 15 East, Sections 14 & 23). The road across Big Ridge is currently open to OHVs, but only via roads through the Glen Canyon Recreation Area, which is closed to non-street legal vehicles. The existing route from North Hatch Canyon through Sections 14 and 21 should be left open to provide OHV access to the 19.1 miles of open routes on Big Ridge. While heavy maintenance will be needed before this route can be used, we think it may be worth it.

**4. Poison Spring Canyon/Burt Mesa Area:** (Township 31 South, Range 14 East, Sections 18 & 19). The route overlooking the Dirty Devil River should remain open for OHV use to the point where it becomes impassable, approximately 1.2 miles north from the point where it is closed in Alternative B. This section of the road provides outstanding viewing of the Dirty Devil River and adjacent canyons.

**5. Goat Water Point Area:** (Townships 30 & 31 South, Ranges 12 & 13 East). A short access route between existing routes on Goat Water Point and the east/west route north of the point is needed to complete a large OHV loop on the north end of the Henry Mountains. The attached map (Attachment H) shows routes that should be considered for this connection. Route A is open for OHV use in Alternative B. It passes through the WSA via a very rough section of a wash and a parcel of private land without a public right-of-way. Route B is a user-created ATV route that bypasses the wash area in Route A and is the only potential route less than 50 inches wide. This would be a great alternative to either Route A or C and is a riding experience highly valued by some ATV users. Alternative C is an easy route made up of existing and new sections of trail around a parcel of private land. The new section of trail would parallel a fence across a sagebrush flat. With the remainder of the large OHV loop on easily negotiated roads, we recommend that Route C be designated as open to OHV use. If a public right-of-way can be acquired across the parcel of private land, routes A and B could be designated alternative routes.

### ***School Trust Lands:***

As the BLM is considering issues that need to be addressed in the RMP, the discussion should contain detailed reference to the issue of inheld state lands in special designations, particularly WSAs, ACECs, and areas to be managed for wilderness characteristics, and the need to give priority to resolution of this issue.

On page 1-6, BLM states that the RMP will apply only to public lands and, where appropriate, split-estate lands where the subsurface mineral estate is managed by the BLM. BLM should re-consider whether it can impose its standards on split estate lands where it does not own the surface. This action diminishes the rights of the surface owner, whether fee or trust lands, to exploit its lands in the manner it sees fit. So long as the operator of an oil and gas well has obtained a satisfactory surface use agreement that can be included in its Application for Permit to Drill to the BLM, BLM should not unilaterally limit mineral development.

Page 1-13 contains a discussion of the BLM's direction under EPCA. Paragraph 3 states that the BLM will "weigh the relative resource values, consistent with FLPMA." None of the alternatives adequately analyze the loss of revenue from formally or effectively eliminating mineral development in many of the lands subject to Special Designations and restrictive viewsheds. There are references to number of wells to be allowed under the alternatives, but no indication what that means in terms of lost revenue to the United States, the State of Utah, local governments, and Utah's school trust, and the effect of that revenue loss under EPCA. Please address this important issue.

Page 2-139 should specifically reference the need for federal acquisition of state school trust lands that are captured by federal reservations and withdrawals such as wilderness study areas, and that all land tenure adjustments necessary to accomplish this goal will be a priority, in accordance with applicable BLM policy guidance (the BLM Manual provisions *re*: state exchanges).

BLM should substantially increase the areas identified as available for disposition by exchange with the State of Utah, in order to fully permit the elimination of state inholdings in withdrawn areas.

In addition, state selection (*i.e.* quantity grants under the Utah Enabling Act, indemnity selections under the Utah Enabling Act, 43 U.S.C. §§ 870-871, and other applicable statutes) should be mentioned as an equally preferred method of land disposition as land exchanges. The BLM's publicly-expressed policy concerning state selections, as described in the BLM Manual, is as follows: (1) the remaining entitlements of the states are to be considered as obligations and debts due the states by the federal government; (2) in applying applicable laws, regulations and policies, BLM is to consider the equities of the States to the greatest extent possible within the constraints of applicable law; and (3) satisfaction of state selections is deemed as "serving the national interest" in connection with FLPMA, including land use planning under FLPMA. BLM Manual 2621.06 A-C. *See also* BLM Instruction Memorandum No. 82-33 (Oct. 15, 1981).

On page 3-72, paragraph 3.4.5.1.1 (Disposals) should be modified to indicate that the preferred method of disposal is land exchange and that facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority. State selections under the Utah Enabling Act and other applicable law will also be given priority pursuant to BLM Manual 2621.06A-C.

Non-BLM mineral lands are directly impacted by RMP decisions. This is not recognized as an impact within the RMP. The largest source of revenue for the Utah school trust is from oil and gas bonuses and royalties. In much of Utah, in order to establish an economic oil and gas resource play, the exploration company needs a large geographic area. It is likely that multiple sections would have to be leased and developed in order to develop the necessary reserves to make the play economic. In SITLA's direct



experience, companies will not lease one trust land section if they cannot lease the surrounding BLM sections. BLM decisions to withdraw mineral lands from leasing in WSAs, areas with wilderness characteristics, ACECs, and other areas therefore directly affects the economic viability of state trust lands inholdings in those areas, particularly for oil & gas. This should be stated as an impact within the section on Impacts to Resource Uses – Energy and Minerals. To the extent possible, BLM should utilize NSO stipulations rather than no lease as this maintains at least some development potential while protecting surface resources.

The second paragraph of section 4.3.5.1 (Impacts Common to All Alternatives) incorrectly states that 354,015 acres within WSAs and the Black Ridge Wilderness Area are closed to surface disturbing activities and thus excluded to new ROWs. Under *Utah v. Andrus, supra*, BLM is obligated to grant reasonable access to inheld state trust lands in WSAs. This fact should be mentioned. In addition, BLM should note in this or the following paragraph that since such ROWs and accompanying development on state lands, could degrade the wilderness characteristics of particular WSAs, acquisition of inheld state trust lands by land exchange will be a priority of BLM's land and realty program.

BLM decisions to withdraw mineral lands from leasing in WSAs, areas with wilderness characteristics, ACECs, and other areas directly affects the economic viability of state trust lands inholdings in those areas, particularly for oil & gas. Restrictive designations additionally increase the cost of access to trust lands, may impair marketability, and require the expenditure of trust resources in pursuing land exchanges with BLM. These facts should be acknowledged appropriately in the discussion of social and economic impacts. See RMP/DEIS at p. 3-97.

The RFDS should include a discussion that as special designations are put into place there could be a decline in the number of wells drilled on BLM lands, and, therefore, a proportionate decrease in the number of wells drilled on trust lands. At SITLA's royalty rate of 12.5%, the loss of wells could result in millions of dollars in bonus, rental and royalty payments that would be lost to the Utah Permanent School Fund.

In Appendix 5 at page 5-1, we encourage BLM to add a new numbered paragraph in the criteria stating that facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority in accordance with existing BLM policy direction (*i.e.* BLM handbook sections directing priority to removal of state inholdings).

We also encourage BLM to delete numbered paragraph 2. It may hinder necessary exchanges to acquire state inholdings. FLPMA does not require that there be no net loss of public lands.

Please also add a new paragraph that states state selections under the Utah Enabling Act and other applicable law will also be given priority pursuant to BLM

Manual 2621.06A-C. All lands not encumbered by a withdrawal or other special designation will be available for state selection.

### ***Water Resources/Rights:***

The state compiled a comprehensive list of potential reservoir sites within the Richfield FO. Sites included were proposed for various projects and listed in government reports. The list was then narrowed to include only the most feasible sites encroaching on BLM lands. A reconnaissance level study including geologic and hydrologic considerations was performed for each of the remaining seven sites. A letter explaining this process was then drafted and sent to water users in the area allowing them to make recommendations and comments. Included with the letter was a packet, which contained the comprehensive list, the narrowed list, and maps showing the location of the potential reservoirs. Recipients were given two weeks to respond.

Because of this process, the state strongly recommends the BLM preserve the seven potential reservoir sites listed below. Due to time and budget constraints an on-site investigation, which will evaluate construction issues, has not yet been completed. As soon as practicable, on-site evaluations will be completed.

**Aldrich Reservoir**, supplied by the Fremont River and located on Sandy Creek in T29S R08E section 22, would impound 2,000 acre-feet of irrigation water. The Wayne County Water Conservancy District has performed a reconnaissance and design study. Stream gauges on the Fremont River near Bicknell indicate an average annual supply of 64,535 acre-feet. This project would require a large sediment reserve or construction of a settling basin due to the contribution of Sandy Creek.

**Antimony Reservoir** would be located one and a half miles to the south east of the town of Antimony in T31S R02W section 26. The Soil Conservation Service (now Natural Resources Conservation Service) originally proposed this small project on Antimony Creek. The Antimony Creek stream gauge located approximately four miles upstream of the proposed dam site indicates an average annual flow of 15,000 acre-feet of water.

**Caineville Wash** would be an off-stream site, west of the town of Caineville in T28S R08E section 35. Water would be piped to the site from an upstream diversion on the Fremont River. The Bureau of Reclamation is currently studying this 20,000 acre-foot site in conjunction with the Wayne County Water Conservancy District. Their investigation indicates the presence of Mancos shale in the abutments and significant portions of the reservoir basin, which would require grouting. The site has not been eliminated from consideration by the irrigation district. The Bicknell gauge indicates an average annual water supply of 64,535 acre-feet.

**Road Creek** (upper) originally proposed in the state engineers report to the Governor in 1943 is located just west of Loa in T28S R02E section 3 on Road Creek. This 5,962 acre-foot reservoir located on Road Creek would be supplied mainly by

diversion from the Fremont River. The Division of Water Resources performed an area-altitude estimate of the available water supply from Road Creek and conservatively estimates its average annual contribution to be 954 acre-feet.

**Thurber** dam (Bicknell Bottoms) would be located two miles southeast of the town of Bicknell in T29S R04E section 7. This reservoir would have a capacity of 46,512 acre-feet and would be supplied mainly by the Fremont River. The reservoir would inundate considerable amounts of cultivated land and portions of the K.E. Bullock Waterfowl Management Area. Originally identified in the 1943 State Engineers report, this site, along with the two Torrey sites, are still being considered by water users in the area for future projects.

**Torrey** (Poverty Flat). The Bureau of Reclamation and the Wayne County Water Conservancy District are presently studying this site. Located one mile to the west of Torrey in T29S R04E section 10, this reservoir would impound 50,000 acre-feet of water behind a dam. A principle feature of this reservoir would be power generation. A small re-regulating reservoir has also been proposed that would allow peaking power production without adversely affecting river flows.

**Torrey** (Upper) is near the larger site and would store 2,000 acre-feet of exchange irrigation water, for water rights upstream of the reservoir. This site has been included in a 1940 Bureau of Reclamation study, 1943 State Engineers Report for the State of Utah, and the Colorado Interim Report, U.S.B.R. July 1947. More recently, the Washington County Water Conservancy District has completed a preliminary design for the project.

The limited number of suitable storage sites is gradually declining as land is used for other purposes and placed in protective withdrawals. Keeping potential reservoir sites open for consideration, especially in this arid region, will help secure much needed water supplies for the future.

#### ***Utah Geological Survey:***

Under the preferred alternative, there is a potential problem with the transportation of coal produced from the Henry Mountains coalfield, should such development occur. The route designations map (2-18 for Alternative B) shows two networks of routes providing access to the central part of the coalfield in T. 32 S., R. 8-10 E.; one route heads south from Highway 24 along the Notom road, and the other heads west from Highway 95 in the area between the Mount Ellen-Blue Hills and Mount Pennell (spelled incorrectly as "Pennel" on map 3-14) WSAs. While there are two alternative routes where a paved road could be constructed to truck coal out of the Henry Mountains coalfield, the route to the east, which is the most favorable for coal development from the standpoint of proximity to distant rail access at Green River, appears to be the least favored by the BLM because it is deemed an area of right-of-way avoidance in alternative B (Map 2-31). Avoidance of a right-of-way in this area will likely force any potential future coal truck traffic along the non-avoided Notom route, within sight and sound of Capitol Reef National Park. BLM should consider removing



the right-of-way avoidance area that blocks access to the east linking up with Highway 95, and remove the management preference that would likely push any future coal truck traffic along the Notom road corridor.

### ***Fish and Wildlife:***

Throughout the document, seasonal closures and other stipulations are listed as the primary tools to reduce surface disturbing impacts to big game and other wildlife, including sensitive species like the greater sage-grouse. Such mitigation has long been the primary tool used to reduce energy development impacts to wildlife. Seasonal closures during construction activities prevent short-term wildlife displacement, however construction may result in long-term displacement or deleterious impacts (*e.g.*, structures that provide raptor perches near or within greater sage-grouse brooding habitat) for many years (*e.g.*, oil wells and associated infrastructure requiring maintenance for 20 to 30 years). The UDWR strongly encourages the BLM to mandate off-site mitigation for surface disturbing actions on projects that are expected to have long-term impacts to crucial wildlife habitats. Further, the BLM should include an index (for example, 1 acre impacted: 4 acres mechanically restored) in the RMP for all future development in crucial wildlife habitat. Mitigation alternatives could include rangeland and habitat restoration, noxious weed control, prescribed fire, and/or mitigation banking—thus, improving and/or protecting wildlife habitat elsewhere.

Mitigation of many actions covered under this RMP should be coordinated cooperatively within the framework of the Utah Partners for Conservation Development (UPCD), which includes the UDWR, BLM, USFS, SITLA, NRCS, and other state and local entities. The UPCD has identified high-priority areas in need of restoration in sage-grouse and mule deer habitats across the State of Utah, including the Fish Lake National Forest and lands administered by the Richfield BLM field office. Further, the UPCD may serve to facilitate project mitigation by providing a mechanism to augment habitat improvement projects.

Previously, the UDWR submitted a comment suggesting that specific protection and management of special status species should be discussed in the RMP. At that time, the draft RMP stated that BLM actions would be consistent with guidelines provided by the U.S. Fish and Wildlife Service or other agencies. However, no mention was made in other sections of how that may affect oil and gas leasing, surface mining, off-road vehicle travel, or other land uses. This draft also fails to include that information. Without an understanding of the stipulations that will be implemented, it is difficult to know if sufficient species protection will be ensured and will remain consistent with future BLM managers and administrators.

The Richfield RMP should be consistent with the newly developed Utah Wildlife Action Plan (UWAP). The UWAP describes how species of concern will be managed in the State of Utah. These species should be included in the RMP where special status species are discussed. The UWAP also describes priority habitat types in Utah that support most of Utah's sensitive species. The BLM was a cooperator during the development of the UWAP and by Executive Order 13352, Facilitation of Cooperative

Conservation, should acknowledge this plan as the guideline for sensitive species management in the State of Utah.

#### **Allocation of Forage:**

On behalf of the state, UDWR personnel from our Southern and Southeastern regional offices served as interdisciplinary team members and contributed a significant amount of time to development of initial drafts of the RMP. Many of the preliminary agreements that came out of this process are not reflected in the DEIS. Potential transplants of wildlife were addressed during this process, as were issues affecting management of bison, mule deer, sage-grouse, and bighorn sheep. Rather than tackle these issues now, the Draft RMP states that a Habitat Management Plan (HMP) will be developed later. Much work has been invested in this cooperative process over the past three years, and the state prefers to see these issues resolved within the scope of this RMP if possible. At the minimum, the state recommends the Richfield RMP should stipulate a timeline for completion of the HMP and include assurances that the HMP will be consistent with the Henry Mountains Bison Plan, which was developed in cooperation with the BLM.

On page 4-466, the RMP/DEIS states that under Alternative A, BLM would reallocate AUMs dedicated to wildlife back to livestock grazers and that the Utah Department of Wildlife Resources would "forfeit" the investment it made in purchasing "AUMs from livestock permit holders for the purpose of increasing available forage for wildlife." These AUMS were allocated to wildlife through purchase and an associated resource management planning amendment executed in the late 1980s. To the extent state rights are involved, the state does not agree to "forfeit" any of its rights. If BLM decides to reallocate AUMs from wildlife to livestock within these allotments, the state would like to work with BLM to assure that the use and timing of grazing is beneficial to wildlife. Intent and trust dictate that, if AUMs are reallocated to livestock, the grazing preference must be given to the organizations that purchased the base property. These groups should also be involved in the development of grazing management plans for the allotments.

Several years ago, the BLM requested that conservation groups identify willing sellers and acquire grazing permits where conflicts with bison existed. This was done, and a conservation group acquired a grazing permit in order to help resolve conflicts between bison and domestic livestock. BLM officials have stated that some of these conflicts existed because forage was originally over-allocated on some allotments. If this is the case, the RMP should address the issue of forage over-allocation. Also, in desert bighorn sheep habitat, the UDWR requests that forage that is not allocated to cattle because of terrain be considered for allocation to wildlife (for bighorn sheep).

## **Minerals and Energy**

UDWR is concerned with the general language describing impacts to fish and wildlife from leasable minerals beginning on page 4-164. It states that impacts to wildlife will be dealt with on a case-by-case basis. We recommend that the BLM develop a long-term plan for mineral extraction and wildlife mitigation within the area covered by this RMP. Moreover, specific guidelines for mineral development should be expressly stated or cited. The brief discussion of impacts in the Richfield RMP does not include potential effects. For example, there is no mention of direct mortality to wildlife from coal trucks and commuting workers. This mortality includes not only big game but also eagles, which have special status under the federal Bald and Golden Eagle Protection Act.

As stated previously, we recommend that the Richfield RMP require adequate mitigation in all mineral leases that result in long-term impacts to crucial wildlife habitats. We also request that the Richfield RMP consider impacts to hunting and fishing from energy development. These important recreational activities are vital to the Utah economy, with an overall economic contribution of more than \$1.23 billion annually. Additional information regarding the impacts of hunting and fishing on the Utah economy is available from UDWR upon request.

## **Motorized Vehicles:**

Off highway vehicles (OHV) have the potential to severely impact wildlife and wildlife habitat. For this reason, UDWR supports proper OHV management and enforcement of OHV regulations. UDWR also supports additional protections for crucial wildlife habitats by stipulating species specific seasonal closures protecting rearing and winter habitats for important and sensitive species (*e.g.* mule deer, sage-grouse, and bighorn sheep). The UDWR recommends that the RMP require active motorized vehicle management, monitoring and cooperation with local communities that may potentially restore OHV use in currently closed areas or preclude OHV use on currently open routes/areas if evidence derived from future surveys or research indicate that OHV use has deleterious or negligible impacts, respectively, to crucial wildlife habitat.

## **Disposal:**

The draft RMP discusses several options for dealing with public lands that have the potential for disposal or transfer. Maps 2-22 and 2-23 identify several of these parcels in Sanpete and Sevier counties that are either located within, or lie adjacent to, State Wildlife Management Areas. We strongly encourage the BLM to withdraw the following parcels from the list of potential disposals: SA01, SA06, SA09, SA10, SA11, SA12, SA13, SA14, SA25, SA29, and SV05.

Disposal of these parcels would negatively impact the Division of Wildlife Resources, inhibiting our ability to effectively manage State Wildlife Management Areas for their purpose as important wildlife habitat. The Division of Wildlife Resources would



be interested in acquiring the management responsibility for these parcels through any of the processes described in the draft RMP, including acquisition via purchase or donation, or R&PP lease.

Map 2-24 illustrates several proposed disposal parcels in Wayne County that are identified as crucial mule deer winter range. Specifically, the UDWR is concerned that parcels WN03, WN03, and WN04, if converted to agriculture, could greatly increase depredation issues in this area. The UDWR hopes the BLM will consider these issues and consult with the UDWR prior to disposal of these parcels.

### **Specific Wildlife Comments:**

Management of Henry Mountain Bison and Mule Deer on p. 2-27 – The state requests assurances in the RMP that the HMP will be consistent with the adopted Henry Mountains Bison Plan.

Domestic sheep diseases are a significant threat to desert bighorn sheep. We recommend that the BLM convert all allotments identified in the Henry Mountains Desert Bighorn HMP to cattle. Further, because of the potential threat of transmission of malignant cataharral fever to bison, we recommend conversion of all allotments east of Capitol Reef National Park to cattle (specified on p. 2-43).

Stipulations implemented by some BLM Field Offices restrict surface disturbing activities in desert bighorn sheep habitat during the rut (October 15 to December 15). We recommend a similar stipulation be included in alternatives B, C, and D.

The preferred alternative offers only seasonal protection within 0.5 miles of Sage Grouse leks and provides no buffer around brooding habitat. *See* RMP/DEIS at p. 2-31. The buffer used for protection of sage-grouse habitat from development should be 2 miles, following the currently accepted management guidelines set forth by Connelly *et al.* (2000) and the 2002 Utah Strategic Management Plan for Sage-Grouse (two documents that should be cited and referenced to provide guidance in sage-grouse management issues). There are no alternatives or reparations known to suitably replace a sage-grouse lek. As such, the UDWR recommends the BLM adopt appropriate avoidance measures for sage-grouse habitat, *i.e.*, preclude new ROWs with high-profile structures (such as buildings, storage tanks, overhead powerlines, wind turbines, towers, and windmills) within 2 miles of a greater sage-grouse lek and/or in crucial brood rearing and winter habitats.

All Alternatives "prohibit long-term surface disturbing activities" within important sage-grouse habitats. The RMP should define (*i.e.*, quantify) "long-term" activities. Three weeks of disruptive activity in close proximity to a lek or brooding habitat may be considered short-term, but still result in significant disruptions to sage-grouse breeding habits. Again, as stated above, these stipulations should be based on guidelines detailed in Connelly *et al.* (2000) and the 2002 Utah Strategic Management Plan for Sage-Grouse.

The Larry Canyon, Sam's Mesa Box Canyon, Twin Corral Box Canyon, and Maidenwater Springs areas provide important habitat for desert bighorn sheep and bison. The discussion on page 2-91 and associated analysis should be revised to reflect this.

## ATTACHMENT B

### **Utah Public Lands Study: Key Social Survey Findings for Garfield, Piute, Sanpete, Sevier and Wayne Counties**

A statewide social survey was conducted by Utah State University in 2007 to assess the ways in which Utah residents use and value public land resources, and their views about public land management. Random samples of residential households were selected in each of the state's 29 counties. Sampled households were contacted by mail, and a randomly-selected adult from the household was asked to participate in the survey. Self-completion questionnaires were distributed to potential survey participants using a multiple-wave survey administration procedure. The discussion that follows is focused on key survey results obtained for Garfield County (n = 125 survey responses), Piute County (n = 28), Sanpete County (n = 133), Sevier County (n = 139) and Wayne County (n = 41).<sup>1</sup>

#### **Economic Linkages to Public Lands**

One major focus of the survey questionnaire involved assessment of the various ways in which Utah residents may engage in economic activities that are linked directly or indirectly to public land resources in the state.

##### Permit-Based Economic Activities

As indicated in Table 1, a minority of survey respondents in each of the five counties considered in this summary reported that a portion of their household income is directly linked to activities that involve permitted uses of lands or resources administered by the U.S. Forest Service, the Bureau of Land Management (BLM), other federal agencies, or the State of Utah. The percentage of respondents indicating that some portion of their household income is derived from such permit-based activities was higher for each of the agency categories in Garfield, Piute and Wayne counties than was the case in either Sevier County or Sanpete County. In Garfield and Piute counties, approximately one-fourth of respondents indicated that a portion of their household income is linked to permitted activities that occur on lands administered by the Forest Service. In Garfield, Piute and Wayne counties, approximately one-fifth of respondents reported that household income is linked to activities that occur on BLM lands.

The figures reported in Table 2 represent the percentages of respondents reporting these types of permit-based economic linkages to public lands who indicated that 25% or more of their total household income is derived from those activities. In each of the five counties, substantial proportions of the respondents who reported involvement in permitted activities indicated that a quarter or more of their household incomes is linked to activities permitted by one or more federal or state land management agencies. Such levels of economic dependence on permitted activities were highest for Garfield County respondents who reported permitted activities on lands administered by "other federal agencies" and the Forest Service, among Piute

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<sup>1</sup> The numbers of respondents for Piute and Wayne counties are small in part because the commercial firm that provided random samples of residential mailing addresses for the statewide survey was able to identify only 92 potentially valid residential addresses in Piute County and 145 in Wayne County. In addition, 30 of the questionnaire packets that were mailed to addresses included in the Piute County sample and 62 of those mailed to addresses in Wayne County were returned as undeliverable. As a result of these unexpectedly small sample sizes, results for Piute and Wayne counties should be interpreted cautiously.



County respondents who reported use of State lands, among Sanpete County respondents who reported use of BLM, other federal agency, and State lands, among Sevier County respondents who use Forest Service, State, or other federal agency lands, and among Wayne County respondents who engage in permitted uses of Forest Service, other federal agency, or State lands.

**Table 1. Percentage of survey respondents reporting that a portion of household income is directly linked to permitted use of public lands or resources.**

<u>Agency</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Forest Service	22.4%	25.9%	7.5%	14.5%	17.1%
BLM	20.0%	18.5%	4.5%	11.6%	19.5%
Other federal agency	9.6%	7.4%	3.0%	1.5%	7.3%
State of Utah	11.2%	16.0%	4.5%	7.3%	12.5%

**Table 2. Percentage of survey respondents reporting permit-based economic activities on public lands who indicated that 25% or more of their household income is derived from those activities.**

<u>Agency</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Forest Service	42.9%	14.3%	40.0%	68.4%	85.7%
BLM	32.0%	20.0%	50.0%	43.7%	37.5%
Other federal agency	66.7%	0.0%	50.0%	50.0%	75.0%
State of Utah	21.4%	50.0%	50.0%	60.0%	60.0%

### Household Participation in Selected Commercial Activities

The next series of questions asked respondents to indicate whether they or members of their households participate in any of a number of commercial activities that, while commonly associated with public land use, can involve the use of either public or private lands. Results summarized in Table 3 indicate that for any of these activities only a minority of survey respondents in any of the five counties reported participation. Among Garfield County respondents the activities reported most frequently were livestock grazing and related work (23.4% of respondents) and commercial firewood cutting (19.4%). In Piute County participation was reported most frequently for livestock grazing and related work (29.6% of respondents) and commercial firewood cutting (25.0%). In Sanpete County the activity reported most frequently was livestock grazing and related work (11.3%). In Sevier County, respondents most frequently reported participation in mining of coal, uranium or other minerals (14.6%). In Wayne County, the activities reported most frequently were livestock grazing and related work (12.2%) and other miscellaneous commercial activities (19.4%).

### Household Involvement in Businesses Linked to Recreation/Tourism

Survey respondents were also asked whether they or any member of their household operates or works at a business linked to recreation or tourism activity that is influenced by the presence of public lands and resources. The percentages of respondents who said “yes” to this question were highest in Wayne County (51.3%), in Garfield County (40.3%), and in Piute County (33.3%). Substantially lower percentages of respondents from Sevier (8.1%) and Sanpete (5.3%) counties indicated this type of economic linkage for their households. Respondents were also asked to assess how important activities and uses linked to public lands are to the success of this business. Among respondents who reported household involvement in such businesses, the proportions who said that the influence of public lands is “extremely important” to that business were 64.0% in Garfield County, 66.7% in Piute County, 44.4% in Sanpete County, 36.4% in Sevier County, and 75.0% in Wayne County.

### Household Involvement in Businesses Linked to Commodity Production

A similar question asked about the involvement of survey participants and members of their households in business that provide services and supplies to farming or ranching operations, logging firms, or other commercial enterprises that use or process natural resources located on public lands. The percentage of respondents reporting participation by a household member in such businesses was relatively low in each of the five counties: 13.8% in Garfield County, 22.2% in Piute County, 11.4% in Sanpete County, 7.3% in Sevier County, and 23.1% in Wayne County.

**Table 3. Percentage of survey respondents reporting that they or members of their households participate in selected resource-based commercial activities, on either public or private lands.**

<u>Economic Activity</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Livestock grazing and related work	23.4%	29.6%	11.3%	8.8%	12.2%
Commercial firewood cutting	19.4%	25.0%	8.3%	8.0%	4.9%
Logging, post & pole cutting, or other timber-related work	8.9%	10.7%	2.3%	7.3%	7.3%
Mining of coal, uranium or other solid minerals	0.8%	7.1%	2.3%	14.6%	0.0%
Mining of sand, gravel, or other construction materials	2.4%	3.6%	2.3%	5.8%	4.9%
Oil and gas exploration and development	2.4%	0.0%	4.5%	4.4%	0.0%
Operating an outfitting or guiding business	5.7%	0.0%	0.0%	2.2%	0.0%
Film making/commercial photography	0.8%	0.0%	2.3%	2.2%	0.0%
Other commercial activities	5.2%	4.8%	5.5%	2.4%	19.4%



### Ownership of Property or Assets With Values Influenced by Nearby Public Lands

When asked whether they own land, buildings, or other assets that they believe have a monetary value that is significantly influenced by the presence and condition of nearby public lands, 54.9% of respondents in Garfield County, 74.1% in Piute County, 22.7% in Sanpete County, 28.7% in Sevier County, and 61.5% in Wayne County said “yes.” Those who did perceive the existence of such a relationship were then asked to identify specific types of assets that they own and that they believe have a value influenced by the close proximity of public lands. Respondents in all five of these counties most frequently cited the value of their permanent, year-round residential property (38.4% in Garfield County, 50.0% in Piute County, 15.8% in Sanpete County, 15.8% in Sevier County, and 48.8% in Wayne County) as being influenced by the presence and condition of nearby public lands.

### **Perceived Importance of Public Lands for Overall Quality of Life**

Survey participants were also asked to report how important they think fifteen different types of public land resources and resource uses are for the overall quality of life experienced by people living in their communities. Table 4 summarizes response patterns to this series of questions for Garfield, Piute, Sanpete, Sevier and Wayne Counties, with a focus on the percentage of respondents from each county who indicated that they consider a particular type of resource use to be “very important” for local quality of life.

In Garfield County four of the fifteen types of public land resource use presented in this question were considered “very important” by fewer than one-half of respondents (energy resource development; sand/gravel or other construction-related mineral development; undeveloped landscapes where motorized access and resource development are restricted; and areas managed to maintain biodiversity and protect habitat). At the same time, over three-fourths of Garfield County respondents considered grazing of livestock on public lands; water resources used to irrigate crops and pastures; water resources used to supply homes and businesses; areas that attract tourism and recreation activity; opportunities to hunt for wild game; and opportunities to fish in area lakes, rivers and streams to be “very important” to the local quality of life.

In Piute County, six of these resource uses were considered “very important” by fewer than one-half of respondents (energy resources; sand, gravel or other minerals; forested areas that provide timber for logging and lumber mills; areas that attract tourism and recreation; undeveloped landscapes where motorized access and resource development are restricted; and areas managed to maintain biodiversity and to protect habitat). Conversely, three resource uses -- water resources used to irrigate crops and pastures; water resources used to supply homes and businesses; and water resources that provide important fish or wildlife habitat -- were considered “very important” to the local quality of life by more than three-fourths of Piute County respondents.

**Table 4. Percentage of survey respondents indicating that selected public land resource uses are “very important” to the overall quality of life in their community.**

<u>Resource Use</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Grazing of livestock on public lands	86.3%	80.8%	71.5%	67.2%	79.5%
Water resources used to irrigate crops and pastures	96.8%	92.6%	95.4%	92.6%	100.0%
Water resources used to supply homes and businesses	94.4%	77.8%	96.9%	91.9%	89.7%
Water resources that provide important fish/wildlife habitat	70.2%	84.6%	74.4%	79.1%	79.5%
Energy resources such as oil, gas, coal or uranium	46.6%	47.4%	40.3%	68.2%	33.3%
Sand, gravel or other minerals used in building and construction industries	40.5%	25.0%	25.2%	43.8%	41.7%
Forested areas that provide timber used by logging operations and lumber mills	71.8%	26.9%	47.6%	37.9%	55.3%
Areas where trees or other vegetation provide important wildlife habitat	59.7%	63.0%	71.2%	73.5%	71.7%
Areas that attract tourism and recreational activity	75.4%	64.3%	48.1%	57.5%	76.9%
Opportunities to enjoy off-road vehicles, snowmobiling, or other motorized recreation	51.2%	78.6%	55.8%	59.6%	56.8%
Opportunities to enjoy hiking, backpacking, cross-country skiing, horseback riding, or other types of non-motorized recreation	64.5%	66.7%	55.4%	51.1%	74.4%
Opportunities to hunt for wild game	76.6%	75.0%	60.9%	69.9%	56.4%
Opportunities to fish in area lakes, streams and rivers	77.4%	85.7%	65.9%	73.3%	64.1%
Undeveloped landscapes where motorized access & resource development are restricted	26.7%	34.6%	34.7%	35.5%	33.3%
Areas managed to maintain biodiversity and protect habitat for sensitive or important plants or wildlife	32.2%	37.5%	41.9%	36.7%	34.2%

Six of these resource uses were considered “very important” by fewer than one-half of Sanpete County respondents: energy resources; sand, gravel or other construction minerals; forested areas providing timber for logging and mill operations; areas that attract tourism and recreation; undeveloped landscapes where motorized access and resource development are restricted; and areas managed to maintain biodiversity and protect habitat. At the same time, three-fourths or more of the respondents from Sanpete County considered water used for irrigation, water used to supply homes and business, and water providing important fish or wildlife habitat to be very important to the local quality of life.

In Sevier County, four resource uses were considered to be “very important” by fewer than one-half of respondents: (sand, gravel or other minerals; forested areas that provide timber for logging and lumber mills; undeveloped landscapes where motorized access and resource development are restricted; and areas managed to maintain biodiversity and protect habitat). As was true in all of the counties, the three water resource categories (water used for irrigation; water used to supply homes and business; and water providing important fish or wildlife habitat) were considered very important to the local quality of life by 75% or more of Sevier County respondents.

Four of the resource use categories were considered to be very important to local quality of life by fewer than one-half of Wayne County respondents (energy resources; sand, gravel or other construction minerals; undeveloped landscapes where motorized access and resource development are restricted; and areas managed to maintain biodiversity and protect habitat). Five of the resource uses were considered very important by three-fourths or more of respondents (grazing of livestock on public lands; water used for irrigation; water used to supply homes and business; water providing important fish or wildlife habitat; and areas that attract tourism and recreation activity).

## **Recreational Uses of Public Lands**

Survey participants were also asked to report whether they had participated in any of a broad range of outdoor recreation activities and other non-commodity use activities on Utah public lands during the prior twelve months. Results from this series of questions are reported in Table 5 and Table 6. These findings clearly indicate that there is widespread participation in many of these public land activities among residents of each of the five counties considered in this summary report.

Table 5 reports the extent of reported participation in thirty different outdoor recreation activities. Among survey participants living in Garfield County, one-half or more reported participation during the preceding twelve months in camping, picnicking, day hiking, wildlife viewing, hunting, fishing, visiting historical sites, ATV riding, and driving for pleasure/sightseeing on public lands. In Piute County one-half or more of the limited number of survey respondents reported that they had participated in camping, picnicking, day hiking, wildlife viewing, nature photography, motor boating, hunting, fishing, visiting historical sites, ATV riding, 4-wheel driving, and driving for pleasure/sightseeing. Half or more of Sanpete County respondents reported participation in camping, picnicking, day hiking, wildlife viewing, fishing, visiting historical sites, ATV riding, and driving for pleasure/sightseeing. In Sevier County the activities reported by 50% or more of respondents included camping, picnicking, fishing, visiting historical sites, ATV riding, and driving for pleasure/sightseeing. Finally, one-half or more of Wayne County respondents reported that during the past twelve months they has participated in camping, picnicking, day hiking, wildlife viewing, nature photography, hunting, fishing, rock hounding, visiting historical sites, ATV riding, 4-wheel driving, and driving for pleasure/sightseeing.



Responses to a question focusing on participation in a variety of non-commodity use activities on public lands are summarized in Table 6. Among this list of activities, Garfield County respondents were most likely to report that they participate in collection of firewood for home use, cutting Christmas trees, gathering pinyon nuts, and collecting rocks for home landscaping. In Piute County, respondents most frequently reported that they collect firewood for home use, cut Christmas trees, collect rocks for home landscaping, and gather pinyon nuts. Sanpete County respondents most frequently reported that they collect firewood for home use. Sevier County respondents most frequently reported that they cut Christmas trees. In Wayne County, respondents were most likely to report that they collect firewood for home use, cut Christmas trees, collect rocks for home landscaping, and gather pinyon nuts. On balance, reliance on public lands for these types of non-commodity activities appears to be higher in Garfield, Piute and Wayne counties than is the case in Sanpete County or Sevier County.

Respondents were also asked to identify the one or two activities from the lists presented in these questions that they participate in most often, and to provide detail on where they engage in those activities. Response data for these questions are currently being processed for Sanpete and Wayne counties, and as a result are not yet available for inclusion in this summary report. Among Garfield County respondents the first of these activities listed by respondents most often involved hunting (16.4% of responses) or fishing (14.5% of responses). In Piute County the first listed activity most often involved either ATV riding (37.5% of responses) or hunting (20.8%). In Sevier County the first-listed activities most often involved camping (26.3%) or ATV riding (16.9%). When asked to indicate where they participate in the first-listed of their “most frequently pursued” activities, 84.7% of Garfield County respondents, 83.3% of Piute County respondents, and 80.2% of Sevier County residents identified a location within the county where they live.

### **Attitudes and Preferences Regarding Public Land Management**

Two similar sets of survey questions focused on respondents’ attitudes and preferences regarding the extent to which various natural resource use activities or management practices should be reduced or increased by those responsible for managing public lands in Utah. Response patterns to these questions are summarized in Table 7 and Table 8.

The data presented in Table 7 indicate that Garfield County respondents were considerably more likely to prefer an increase rather than a decrease in mineral exploration and extraction, timber harvest, exploration for and development of oil and gas resources, protection of fish and wildlife habitat, thinning of forested areas to reduce wildfire risk, livestock grazing, and development of water storage and delivery systems on Utah public lands. They were also more likely to prefer a reduction in designation of wilderness areas and in protection of endangered species. As indicated in Table 8, Garfield County respondents were also more likely to prefer an increase rather than a reduction in provision of road access to recreation areas, provision of hunting opportunities, development of trails for off-highway motorized recreation, development of trails for non-motorized recreation, regulations that restrict motorized vehicles to designated trails, and development of visitor facilities to increase tourism.

**Table 5. Percentage of survey respondents reporting participation in selected recreation activities on Utah public lands during the past twelve months.**

<u>Activity</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Camping	64.7%	76.9%	69.5%	69.3%	73.2%
Picnicking	72.9%	84.6%	77.1%	74.3%	80.5%
Backpacking	22.6%	29.6%	21.6%	18.1%	39.5%
Day hiking	59.1%	50.0%	52.0%	46.9%	80.0%
Bird watching	33.9%	34.6%	30.2%	20.6%	39.5%
Wildlife viewing	75.0%	85.2%	65.1%	73.1%	80.0%
Nature photography	35.1%	50.0%	33.3%	39.1%	56.4%
Canoeing/kayaking	3.8%	19.2%	2.4%	3.2%	8.3%
River rafting	3.8%	11.5%	4.0%	8.7%	2.9%
Motor boating	20.4%	51.9%	24.2%	36.2%	32.4%
Jet skiing	5.8%	14.8%	9.7%	6.3%	5.4%
Swimming	30.8%	29.6%	35.5%	23.4%	24.3%
Rock climbing	13.2%	3.8%	12.1%	7.3%	25.7%
Mountain climbing	11.4%	7.4%	20.2%	22.2%	22.2%
Hang gliding	0.0%	3.8%	0.0%	0.0%	0.0%
Mountain bike riding	13.2%	7.7%	16.9%	13.5%	11.1%
Hunting	56.4%	81.5%	46.5%	47.0%	56.4%
Fishing	67.5%	81.5%	63.6%	63.8%	65.9%
Horseback riding	40.5%	37.0%	24.6%	22.1%	22.2%
Orienteering/geo-caching	7.8%	16.0%	9.6%	11.3%	11.1%
Rock hounding	24.3%	16.0%	22.4%	21.0%	50.0%
Visiting historical sites	60.7%	57.7%	65.4%	60.8%	66.7%
Resort skiing/snowboarding	14.2%	7.7%	15.3%	6.3%	13.5%
Backcountry skiing/snowboarding	3.8%	7.7%	11.3%	1.6%	8.1%
Snowshoeing	4.8%	7.7%	4.8%	4.0%	13.5%
Snowmobiling	9.5%	15.4%	16.0%	10.4%	16.2%
ATV riding	58.1%	92.9%	53.5%	58.6%	61.5%
Dirt bike riding	10.7%	19.2%	9.7%	12.7%	13.9%
4-wheel driving/jeeping	40.0%	66.7%	45.3%	43.6%	59.5%
Sightseeing/pleasure driving	80.0%	88.9%	82.3%	86.7%	87.8%

**Table 6. Percentage of survey respondents reporting participation in selected non-commodity use activities on Utah public lands during the past twelve months.**

<u>Activity</u>	<u>Garfield County</u>	<u>Piute County</u>	<u>Sanpete County</u>	<u>Sevier County</u>	<u>Wayne County</u>
Collecting firewood for home use	56.1%	50.0%	33.6%	26.2%	53.8%
Cutting Christmas trees	46.2%	46.4%	23.6%	35.1%	51.3%
Collecting material for craft projects	24.5%	22.2%	16.7%	20.2%	28.2%
Collecting rocks for home landscaping	30.4%	34.6%	19.8%	28.5%	48.8%
Collecting plants for home landscaping	17.3%	7.7%	9.6%	8.7%	15.8%
Gathering wild mushrooms	1.9%	3.8%	0.0%	2.3%	5.3%
Gathering pinyon nuts	38.6%	38.5%	9.6%	15.6%	41.0%
Gathering berries, herbs or wild foods	19.1%	22.2%	10.4%	9.4%	13.2%
Collecting fossils, rocks or minerals	23.4%	29.6%	18.1%	22.7%	35.9%

As indicated in Table 7, Piute County respondents were considerably more likely to prefer an increase rather than a decrease in mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, use of controlled burns to improve ecological conditions, thinning of forested areas to reduce wildfire risk, and development of water storage and delivery systems. They were also likely to express a preference for a reduction in the designation of wilderness areas, and a reduction in protection of endangered species. Table 8 reveals that Piute County respondents also were much more likely to prefer an increase rather than a decrease in provision of road access to recreation areas, provision of hunting opportunities, development of trails for off-highway motorized recreation, and regulations to limit the noise and emissions from snowmobiles and ATVs.

Table 7 reveals that Sanpete County respondents were much more likely to express a preference for increased rather than decreased emphasis on mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, use of controlled burns to improve ecological conditions, thinning of forested areas to reduce wildfire risk, and development of water storage and delivery systems. Interestingly, they were also somewhat more likely to prefer an increase rather than a decrease in protection of endangered species and in livestock grazing. As indicated in Table 8, respondents from Sanpete County were also considerably more likely to prefer an increase rather than a decrease in road access to recreation areas, hunting opportunities, development of trails for non-motorized recreation, regulations that would require motorized vehicles to stay on designated trails, regulations that would limit noise and emissions from snowmobiles and ATVs, and development of visitor facilities to increase tourism.



Sevier County respondents were considerably more likely to prefer an increase rather than a decrease in mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, use of controlled burns to improve ecological conditions, thinning of forested areas to reduce wildfire risk, livestock grazing, and development of water storage and delivery systems (see Table 7). They were also much more likely to prefer an increase rather than a decrease in road access to recreation areas, hunting opportunities, trails for off-highway motorized recreation, trails for non-motorized recreation, regulations that require motorized vehicles to stay on designated trails, and visitor facilities to increase tourism (Table 8).

Finally, the data reported in Table 7 reveal that Wayne County respondents were substantially more likely to express a preference for increased emphasis on mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, thinning of forested areas to reduce wildfire risk, livestock grazing, and development of water storage and delivery systems. They were also considerably more likely to prefer a decrease as opposed to an increase in designation of wilderness areas. In addition, as indicated in Table 8, Wayne County respondents were much more likely to prefer an increase rather than a decrease in road access to recreation areas, hunting opportunities, trails for non-motorized recreation, regulations that would require motorized vehicles to stay on designated trails, regulations to limit noise and emissions from snowmobiles and ATVs, and visitor facilities for tourists.

**Table 7. Survey respondents' attitudes regarding the extent to which various activities occurring on Utah public land should be reduced or increased.\***

<u>Type of Activity</u>	<b>Garfield County</b>		<b>Piute County</b>		<b>Sanpete County</b>		<b>Sevier County</b>		<b>Wayne County</b>	
	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>
Mineral exploration/extraction	11.9%	63.5%	4.8%	38.1%	15.0%	35.0%	12.6%	39.5%	19.4%	44.4%
Timber harvest	5.8%	73.6%	0.0%	46.1%	11.2%	62.4%	11.8%	48.8%	21.1%	50.0%
Designation of wilderness areas	66.7%	14.2%	46.2%	7.7%	33.1%	26.8%	46.4%	15.2%	50.0%	22.5%
Exploration for/development of oil and gas resources	9.2%	70.6%	8.0%	56.0%	17.7%	46.0%	13.6%	48.8%	24.3%	40.5%
Protection of important fish and wildlife habitat	13.1%	36.9%	18.5%	37.0%	7.1%	47.7%	4.7%	47.6%	15.0%	50.0%
Protection of endangered species	50.4%	20.5%	42.3%	26.9%	22.2%	39.7%	31.2%	24.8%	33.3%	30.7%
Use of controlled burns to improve ecological conditions	42.9%	25.2%	20.0%	48.0%	19.5%	37.3%	14.9%	31.4%	28.9%	39.5%
Thinning of forested areas to reduce wildfire risk	8.3%	70.0%	0.0%	76.0%	8.8%	67.2%	4.8%	66.9%	5.4%	67.5%
Livestock grazing	7.4%	52.1%	18.5%	18.5%	14.3%	27.0%	14.5%	29.9%	7.5%	40.0%
Designation of wild and scenic rivers	38.8%	20.7%	34.8%	13.0%	24.1%	24.2%	20.7%	22.3%	31.6%	31.6%
Developing water storage and delivery systems to meet needs of nearby communities	3.3%	84.3%	3.8%	57.7%	2.3%	78.5%	2.3%	72.7%	2.6%	76.9%

\* Original response categories were “major reduction” and “moderate reduction” (combined to create “reduce”) and “major increase” and “minor increase” (combined to create “increase”). “Stay about the same” responses not reported here.

**Table 8. Survey respondents' attitudes regarding the extent to which the emphasis placed on various activities occurring on Utah public land should be reduced or increased by public land managers.\***

<u>Type of Activity</u>	<b>Garfield County</b>		<b>Piute County</b>		<b>Sanpete County</b>		<b>Sevier County</b>		<b>Wayne County</b>	
	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>	<u>Reduce</u>	<u>Increase</u>
Permitting of commercial guiding or outfitter services	14.8%	22.6%	19.2%	11.5%	19.7%	12.0%	25.4%	10.2%	5.3%	21.1%
Providing road access to recreation areas	7.4%	66.1%	10.7%	67.8%	12.8%	49.6%	8.3%	54.9%	12.5%	37.5%
Providing hunting opportunities	7.4%	52.9%	14.8%	44.4%	10.5%	40.3%	11.5%	50.0%	5.1%	46.1%
Developing trails for off-highway motorized recreation	21.5%	53.7%	17.9%	35.8%	28.3%	42.5%	20.9%	48.9%	30.8%	35.9%
Developing trails for hiking, biking, and other non-motorized recreation	11.7%	50.0%	11.1%	22.2%	12.1%	53.2%	17.6%	53.5%	5.0%	42.5%
Regulations that require motorized vehicles to stay on designated trails	21.3%	48.4%	18.5%	33.3%	12.5%	56.2%	13.0%	52.7%	20.0%	55.0%
Regulations that limit levels of noise and emissions from snowmobiles and ATVs	24.4%	36.1%	10.7%	39.3%	17.9%	45.5%	20.6%	37.3%	12.8%	51.2%
Developing visitor facilities to increase tourism	12.5%	51.7%	22.2%	33.3%	18.9%	36.0%	18.5%	38.5%	15.8%	42.1%

\* Original response categories were "major reduction" and "moderate reduction" (combined to create "reduce") and "major increase" and "minor increase" (combined to create "increase"). "Stay about the same" responses not reported here.



## **ATTACHMENT B**

ATTACHMENT E

**Review of the Socioeconomic Analysis  
in the Draft Environmental Impact Statement  
prepared by the USDI-Bureau of Land  
Management Richfield Field Office**

1 October 2006

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## Executive Summary

This document reviews the socioeconomic portion of the Richfield Field Office Draft Management Plan Draft Environmental Impact Statement. This is the second such analysis conducted by faculty at Utah State University, and was funded by a contract from the Six County Association of Governments.

The first analysis was conducted in the fall of 2005, and found that the socioeconomic analysis lacked specificity because necessary data had not been gathered, and that relevant research had not been incorporated (see Appendix A). This second analysis attempts to address selective deficiencies in the DEIS, notably by:

- i) expanding the discussion of grazing economics, and the possible impacts to ranching operations of management changes,
- ii) reviewing the IMPLAN treatment of grazing economics,
- iii) discussing the regional economic impact of expanding oil and gas exploration and production in the area,
- iv) expanding on the existing RMP discussion of social connections between nearby communities and the public lands, particularly in terms of forms of attachment to public lands and recent research findings on attitudes toward resource extraction and other public land management issues,
- v) summarizing the relevant sociological research on the impacts associated with rapid community change that might occur as a result of extensive energy development in the region,
- vi) a disaggregation of the region into rural community clusters or neighborhoods to show how social conditions and linkages to surrounding public lands might vary geographically,
- vii) expanding on the discussion of ATV use, both as a significant recreation resource and as a source of economic activity.

To briefly summarize the findings of this report:

- The relevant standards for reviewing the adequacy of the DEIS are 1) the CEQ's requirement for rigorous and objective analysis, 2) the hard look doctrine that has emerged out of the case law related to the Administrative Procedures Act, and 3) the BLM's internal guideline for socioeconomic analysis.
- The analysis of grazing economics is weak because it assumes that BLM AUMS are only a marginal input into ranching operations, and that a proportional reduction in them will therefore result in a proportional reduction in the aggregate grazing economy.
- The potential economic impact of an expanding oil and gas region are readily estimable using standard economic impact methods, and example impacts of various scenarios are presented. There is also an extensive body of sociological research on energy boomtown in the west. If there is a large scale expansion in the region's oil industry, there are likely to be community disruptions, but they are



also likely to be of modest duration (several years). There is also a possibility of a “bust” after the initial growth phase

- There are distinct socioeconomic “neighborhoods” within the overall planning area that are likely to have differential connections to the BLM lands, and therefore would likely experience differential impacts of changes in BLM management.
- There is a considerable body of OHV-related research and management experience that would have significantly enhance the discussion of this issue

But as was the case in the original review, there is little that can be done in terms of re-analysis because the essential data is not available. That creates the fundamental constraint in extent to which socioeconomic impacts can be discussed. As examples:

#### 4.1.3 Impacts from Vegetation

“Insufficient information exist to quantify...”

#### 4.1.4 Impacts from Wildland Fire Management

“The extent of socioeconomic impacts of fire cannot be projected...”

#### 4.1.5 Impacts from Forestry and Woodland Products

“Insufficient information on current harvest and harvest potential (e.g., areas suitable for timber harvest is available to quantify...”

#### 4.1.7 Impacts from Recreation

“Due to insufficient data, economic differences between the alternatives could not be quantified.”

#### 4.1.8 Impacts for Off-Highway Vehicles

“Demand for OHV recreation use is likely to increase over time in the field office, although these increases are not quantifiable with existing data....The alternatives differ in the amount and types of OHV opportunities they provide. The differences are discussed qualitatively; insufficient information is available to quantify these differences.”

#### 4.1.9 Impacts from Land and Realty

“The net impact on local government finances cannot be determined without detailed information...”

Some differences between the alternatives in disposals under FLPMA Section 203 are noted qualitatively....

Neither the increased economic activity nor other social benefits or costs can be predicted...”

#### 4.1.11 Impacts to Regional Employment and Income

“Excepting livestock grazing, insufficient information is available to allow quantification of differences in employment and income between the alternatives.”

The conclusions from this report broadly parallel those from the earlier, more cursory examination. Complying with the BLM’s own guidelines for socioeconomic analysis, as well as the relevant external standards that emerge from NEPA case law, arguably demand a more thorough/data-driven approach than is evident in the DEIS to date. Simply stated, it is difficult to imagine how the standards of a “hard look” and rigorous and objective analysis can be attained without the information sufficient to the task.

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## Section I: Overview

### I.1 Purpose of Analysis

The purpose of this report is to assist the County Commissioners in the Six County AOG in their discussions with the USDI-Bureau of Land Management (BLM) regarding the appropriateness and quality of the socio-economic analysis contained in the DEIS prepared to analyze the potential impacts of the Management Plan for the Richfield Utah Field Office. The County Commissioners have believed that the socioeconomic analysis in the DEIS was insufficient and did not give adequate consideration to a suite of issues of local concern. They have therefore enlisted the assistance of faculty from Utah State University to evaluate the quality of the BLM's analysis<sup>1</sup>.

The review is conducted in two basic steps. First, a standard for analysis is articulated which serves as the "measuring stick" against which the BLM's socioeconomic analysis can be evaluated. It would be both irrelevant and inappropriate for the USU faculty authoring this report to impose their preferences as the standards to which the BLM analysis should be held accountable. The standard for analysis that is employed instead comes from the body of regulations promulgated by the CEQ to guide the implementation of the National Environmental Policy Act of 1970 (NEPA) in conjunction with well-established principles of administrative decision-making that have been developed both through legislation and case law.

### I.2 Standards for Analysis

The standards by which the Richfield BLM DEIS will be evaluated in this report come from two sources: external guidance from the relevant regulations and case law and internal guidance developed by the BLM itself.

#### *I.2.a. External Standards*

The relevant regulations and case law for the analysis of the adequacy of this DEIS are associated primarily with two laws: NEPA and the Administrative Procedures Act of 1946 (APA). They are chosen because NEPA is the specific legal mandate driving the DEIS process and the APA is the broadest statute that defines the adequacy of federal agency decision processes.

As NEPA has evolved in the nearly 40 years since its passage, it has two fundamental purposes: to guide the character and quality of agency decisions processes when potentially significant impacts are involved, and also set minimum standards for the public disclosure of those impacts. Like many pieces of legislation, NEPA is both relatively brief and short on detail. Most of the specific requirements of NEPA

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<sup>1</sup> It is recognized that the DEIS was initially prepared by a contractor on behalf of the BLM. That does not lessen the standards of analysis nor does it fundamentally shift the burden for doing an adequate job away from the agency. The document is therefore simply referred to as the BLM DEIS.

compliance are therefore articulated in the regulations drafted by the Council on Environmental Quality (CEQ), in executive orders, or in case law. As relates to this review of the Richfield DEIS: the key phrase comes from the CEQ regulations' discussion on alternatives:

**Sec. 1502.14 Alternatives including the proposed action.**

This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:

(a) *Rigorously explore and objectively evaluate* all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated. (emphasis added)

The highlighted passage in Sec. 1502.14(a): "rigorously explore and objectively evaluate" establishes an important benchmark. Beyond that statement, however, neither NEPA nor the CEQ regulations go into great depth in establishing standards for the quality of agency decision making. The fundamental measure of "good" agency decision processes comes instead from the Administrative Procedure Act of 1946 (APA).

The federal Administrative Procedure Act ("APA"), 5 U.S.C.A §501 et seq. (1946, as amended), is the blueprint of modern federal administrative law, and is used almost universally as a model by the states as well. It sets out many (although not all) of the basic definitions and prescriptions for how an agency is to run itself—how to promulgate rules, how to give notice to the public, how hearings examiners (administrative law judges) are to proceed and so on. Chapter 7 of the APA prescribes the basis for judicial review of challenged agency actions 5 U.S.C.A. §§701-706. (Plater, Abrams, and Goldfarb, 1992, p. 541)

Although not as well known as NEPA, the APA in fact sets a more precise standard for the quality of federal decisionmaking. This arises because the APA prohibits "arbitrary and capricious" decisions. Many cases that begin administratively as NEPA processes are ultimately judicially reviewed based upon the decision maker's compliance with the APA. Over the years, an extensive legal doctrine of the "hard look" has been articulated in response to this requirement: if decision makers can show that they based their decision on a hard look at the issues, then the result is deemed to not be arbitrary and capricious. The hard look doctrine began to be articulated by the US Supreme Court in

early 1970s in the landmark *Overton Park* case<sup>2</sup> Although federal judges have been reluctant to replace agency decisions with their own, federal agency decision makers nevertheless have an affirmative obligation to demonstrate that their decision processes are thorough.

Judicial review of federal agency action operates under Chapter 7 of the APA, 5 U.S.C.A. §701 et seq. The challenging party must show standing and reviewability under §702 and fulfill a few other judge-made requirements (ripeness for review, exhaustion of agency remedies, etc.). Section 706 then sets out a catalogue of challenge on the merits: "arbitrary, capricious, or abuse of discretion" test (for informal rulemaking or adjudication) or the requirement of "substantial evidence" supporting the decision (in the case of most formal proceedings). (Plater, Abrams, and Goldfarb, 1992, p. 543)

The core standard by which the Richfield DEIS will be evaluated in this report will therefore be a combination of the standards from the APA and the CEQ regulations. The hard look doctrine will be the overarching standard: is there evidence of a hard look? The specific definition of what constitutes a hard look will be further articulated as "rigorously explore and objectively evaluate." This blend of NEPA and APA requirement is consistent with the predominant standards of judicial review of agency decisions.

The National Environmental Policy Act (NEPA) states that all Federal agencies "to the fullest extent possible" must provide a detailed environmental impact statement (EIS) (42 U.S.C. 4332). Neither Congress nor the courts have indicated precisely how much detail an EIS must contain. However, courts consistently have held that, at a minimum, NEPA imposes a duty on Federal agencies to take a "hard look at environmental consequences" (*Natural Resources Defense Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir., 1972)). Hence, courts have carefully checked EIS's for completeness of information and detail, soundness of analysis, thorough discussion of alternatives, and disclosure of sources. Some court decisions have ordered agencies to prepare new statements if these criteria are not met.

The courts' interpretation is that the agency has the "requirement of a substantial, good faith effort at studying, analyzing, and expressing the environmental issues in the EIS and the decisionmaking process, and a recognition that a rule of reason must prevail because an EIS which fully explores every relevant environmental detail could never be drafted" (*Natural Resources Defense Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir., 1972)). If the EIS provides good faith analysis and sufficient

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<sup>2</sup> *Citizens to Preserve Overton Park Inc. v. City of Memphis*, 401 U.S. 402, 91 S.Ct. 814, 28 L.Ed. 2d 136. (1971).



information to allow a firm basis for weighing the risks and benefits of a proposed action, the court will find the EIS to be sufficient (*County of Suffolk v. Secretary of the Interior*, 562 F.2d 1368 (2nd Cir. 1977), cert. denied, 434 U.S. 1064 (1978)).

<http://www.aphis.usda.gov/ppd/es/g19.html>

(also see <http://pacer.cadc.uscourts.gov/common/opinions/199912/99-5220a.txt> for a case that is about scope of review flowing from *NRDC v Morton*)

The key to the review will be whether or not the BLM used appropriate analytical techniques and data in their socioeconomic analysis. The benchmarks of rigorous and objective guide this review. To the extent that there are analytical techniques that are well established, feasible, and broadly accessible, then their use would seem to meet the broad test of rigorous. By the same token, it would seem that the use of data-driven techniques would be essential to meeting the test of objective analysis; without data, analysis cannot progress much beyond subjective speculation.

It is also useful to specify what standards are *not* appropriate for reviewing the Richfield DEIS. There are at least three. First, there is no requirement in either the CEQ regulations or the NEPA-related case law that an EIS be exhaustive/encyclopedic. To apply such a standard on agency decision processes in general—and this DEIS in particular—would be unduly burdensome and unrealistic. Indeed the philosophy that emerges from the APA and its related case law is that federal agency decision makers are not expected to be prescient or omnipotent, merely thorough and diligent. Second, because a land management plan pursuant to FLPMA is programmatic, site specific analysis would not be appropriate. Finally, impact analysis would not be feasible given the level of detail required for a programmatic EIS.

#### *1.2.b. BLM Guidelines*

The BLM manual includes a Land Use Planning Handbook (H-1601-1), which in turn includes *Appendix D: Social Science Considerations in Land Use Planning Decisions*. The appendix articulates the legal obligation that the agency has to address socioeconomic issues, presents a 9-step planning social science process, and outlines a number of techniques that can be used to gather and analyze information that is relevant to a range of potential impact. It also emphasizes that social science analysis can be meaningfully lined to a collaborative dialogue between the agency and the public, and that sound data and analysis are fundamental to the task.

Appendix D is consistent with the prevailing use of applied social science. Its discussion of social science techniques as they related to the analysis of land management decisions is sound, thorough, and contemporary.

## Section II: Economics

### II.1 Grazing economics

The analysis presented in the Richfield Resource Management Plan EIS used the following approach to estimating direct impacts of grazing permit changes on permittees:

1. Reduction of AUMs (Animal Unit Months) in the permits;
2. Calculation of the value of an AU (Animal Unit) based on sale price of an AU in the market;
3. Calculation of the value of an AUM by dividing the value (market price) of an AU by AUMs/AU (taken from Workman and other publications)<sup>3</sup>; and
4. Multiplication of the reduction in AUMs by the calculated value per AUM.

The implicit assumption in this calculation is that permittee production of livestock is a linear function of AUMs, that is, livestock (AU) reductions are linearly dependent on AUM reductions or increases. Thus, how dependent livestock operators are on BLM grazing permits is irrelevant to the calculation of direct impacts, and livestock operators will simply alter the number of animals by the change in available BLM grazing. While several researchers have, in fact, used this approach (Fletcher, et al., for example), they have acknowledged that the approach is flawed because it does not consider changes in the structure of livestock operations due to changes in permitted grazing. In fact, Fletcher, et al., report that others (Taylor, et al. and Rimbey, et al.) indicate that the actual percentage changes in total livestock production was significantly greater than the percentage reduction in Federal permitted grazing in two cases in Wyoming (U.S. Forest Service) and Idaho (Bureau of Land Management).

The reason for this discrepancy is likely the dependency of the livestock operators on Federal permits. Dependency can be defined in several ways, including percentage of ranchers or livestock using public land grazing permits, percentage of forage needs provided by public lands, and percentage of forage needs by season coming from public lands (Godfrey and Bagley). The latter two definitions are clearly the more important with respect to changes in Federally permitted grazing. The higher the dependency, the more likely that operators will not be able to find substitute forage (at least at an economically feasible price), and thus reduce their herds by more than the reduced permitted AUs. Alternatively, the lower the dependency, the more likely it is that livestock operators will simply shift from one source of forage to another, which would alter their inputs but not their production. It should be recognized that the forage which is most limiting physically or economically - be it Federal grazing permits by season or other forage - will determine the size of the herd that an operator can maintain.

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<sup>3</sup> Note that the market value of an animal is assumed to reflect its capacity to produce offspring and, thus, the present value of future net earnings from those offspring.



For many livestock operators in Utah, the dependency is quite high. In their study of Wayne County operators, Godfrey and Bagley estimated that 38% of forage came from Federal sources, but that the range of observed dependency was from 0 to 100%. Clearly, the impact of permitted grazing changes is determined by the characteristics of the operators and the available substitute (or complementary) forage sources. These expected changes can be modeled using operations research (linear or non-linear programming) models, which include consideration of available substitute forage and the regime of forage use (that is, seasons of use and sources of forage during those seasons). In fact, Godfrey and Bagley found that the shadow value (economic reflection of dependency) of Federal grazing permits (forage) varied by both period of use and cost of public land grazing. This variance suggests that permit changes will likely affect changes in operations in a non-linear fashion.

In order to achieve a reasonable estimate of the impacts of changes in BLM permits in the Richfield area, some analysis of dependency and its effect on operators should be attempted. The Wayne County study (Godfrey and Bagley) suggests that failure to take dependency into account could result in serious error. The linear relationship assumed in the RMP EIS is simply not adequate.

#### *II.1.a. IMPLAN treatment of grazing economics*

The IMPLAN model which was used in the Richfield RMP EIS analysis (the IMPLAN model using the 2001 dataset for the six counties) is based on the NAICS industrial sectors. Sector 11, cattle ranching and farming, is a sector which is based on an average cattle ranching and farming sector for the United States, modified by supply/demand pooling techniques to arrive at the regional input-output coefficients for that sector. Previous IMPLAN analyses (for example, the model using 1999 data) were based on modified SIC codes and included a specific sector for "Range fed cattle" (as opposed to ranch fed cattle). Thus, the previous model implicitly recognized that range and ranch fed cattle operations were significantly different with respect to their purchasing (and sales) practices. Range fed cattle only compose about 3% of all cattle produced in the United States, but make up a much larger percentage (approximately 24% of cattle for the State of Utah and 38% of cattle in Wayne County) of the production in the six county region. Thus, it is quite likely that the "new" input-output model does not accurately reflect the range livestock sector. This problem has been recognized by many users of the IMPLAN model (for example, Fletcher, et al., cited above used a modified NAICS IMPLAN model with "...the livestock sector ...edited to reflect [Western university] cow/calf cost and return studies...") No such modification appears to have been accomplished for the RMP EIS. Other studies (Godfrey and Bagley) have used input-output models, RIMS multipliers, or other types of impact models to analyze grazing impacts, but in most cases, the sector has been developed to specifically reflect Western public land grazing.

Godfrey and Bagley also found that in Wayne County "...only two families were solely dependent on livestock production for their livelihood..." and that many operations were likely to have outside employment to augment household income. While Godfrey and Bagley were unable to identify any specific data, one could conclude that, at some level,



grazing reductions might result in households which combine both livestock operations and outside income being unable to be financially sustainable.

The impact analysis of public land grazing changes must take account of the differences in the structure of the livestock sector. At the very least, if IMPLAN is to be used for this and other RMP EISs, a range livestock sector should be developed for the analysis. Moreover, the analysis should at the very least qualitatively discuss the financial sustainability of multiple income ranching operations in the face of changes in permitted grazing.

## **II. 2 Oil and Gas Exploration and Production**

The BLM acknowledges that the Oil and Gas (Mineral) section of the socioeconomic analysis has not accounted for the recent activity in the region. In 2004, the State of Utah Energy Office completed a draft report that examined the economic and fiscal impacts of drilling and completing a gas well. The well characteristics used were 12,000-foot drilling depth, and an initial 200 million cubic feet production annually (declining at a rate of 10% per year). Estimates were also made for a 1,000-well field completed at a rate of 100 wells per year. These aggregate impacts were estimated using the State's REMI (Regional Impact Models, Inc.) model and data supplied by the Independent Petroleum Association of Mountain States (IPAMS). This analysis indicated that, for each well drilled and completed, employment in the Uintah Basin would increase by 13.3 jobs and personal income would increase by \$309,300, with an additional 1.5 jobs and \$30,000 personal income increase in the remainder of the State.

The discovery of oil in the Covenant field near Richfield by Wolverine Gas and Oil, Inc., has been suggested as an indicator of significant oil and/or gas deposits in the region. Several hundred thousand acres of exploration leases have been made by the BLM, and private leasing for exploration appears to have increased significantly, as well. While the development of a large oil and gas industry in the region remains speculative, potential socioeconomic impacts are considerable.

Utah State University, at the request of the Six County Association of Governments, developed an impact analysis for oil and gas exploration and production in 2005. The basic data regarding potential well production and direct employment were obtained from Wolverine Gas and Oil. The impacts were developed with an IMPLAN model based on 2001 data. The report (Department of Economics) uses three scenarios of oil development: Low (one production site only), Medium (five production sites) and High (ten production sites), with 1, 2 and 3 drill rigs, respectively, operating per year for 10, 15, and 20 years, also respectively. Oil production by each well was assumed to continue for 30 years, with production ranging from about 2 million barrels of crude to 11 million barrels of crude per year. Wolverine reported that, using directional drilling techniques coupled with new drilling technology, employment per well would be about 5 persons per drilling rig. Production also employed relatively few people, although when trucking the crude was included in Wolverine's data, that employment increased to approximately 50 persons. Table 1 indicates the results for the three scenarios. "Value added" reflects

total household income, composed of wages and salaries, proprietors' income, and rents and interest. The tax revenue is estimated as the aggregate State and local tax revenues. In general, these impacts are small relative to the current levels of economic activity.

Table 1. Annual impacts of oil exploration and production in the Six County region

	SCAOG 2002	Low Scenario	Medium Scenario	High Scenario
Jobs	27,725	117	365	612
Total Sales (million \$)	2,390	124	380	636
Value Added (million \$)	1,240	28	85	142
Tax Revenues (\$ million)		5	15	26

These impacts do not include exploration or production by other companies, nor a consideration of the discovery and production of natural gas.

In addition to the exploration and production of oil, there will also be shorter or longer term impacts on local infrastructure, land and housing costs, and other socioeconomic variables, depending upon the number of producing wells that are developed.

## Section III: Recreation

### III.1 Richfield RMP Planning Process and OHV Management

#### *III.1.a. Broad Agency Guidance Regarding OHV Management*

On November 1, 2001 a notice was published in the Federal Register (Volume 66, Number 212) regarding a Resource Management Plan (RMP) the Bureau of Land Management (BLM) Richfield Field Office was planning to prepare (“Intent To Prepare a Resource Management Plan for Public Lands and Resources in Garfield, Piute, Sanpete, Sevier, and Wayne Counties, UT”) along with the accompanying Environmental Impact Statement (EIS) as required by the National Environmental Policy Act of 1969 (NEPA) and other federal laws. It is stated in the notice that one of the purposes of the RMP was an attempt to consolidate the five existing land use plans into a single guiding document. The existing plans were described as out of date regarding existing resource conditions, legal precedents, and public values. The existing land use plans are: Mountain Valley Management Framework Plan (MFP) approved in 1982; Henry Mountain MVP approved in 1983; Parker Mountain MFP approved in 1982; Cedar-Beaver-Garfield-Antimony (CBGA) RMP approved in 1984; and San Rafael RMP approved in 1991. (<http://www.epa.gov/fedrgstr/EPA-IMPACT/2001/November/Day-01/i27424.htm> accessed 8/27/06)

The notice identified 16 items defined as “Preliminary Planning Criteria” intended to help guide the planning process. There appears to be three of those items that directly bear on outdoor recreation and tourism in the area: “6) focus management prescriptions on the harmonious and coordinated management of the land and the quality of the environment, giving consideration to the relative values of the resources and not necessarily the combination of uses that provide the greatest economic return or greatest unit output; 7) address the social and economic impacts of the alternatives;” and “16) develop direction for managing off-highway vehicles consistent with BLM’s national OHV strategy.”

The BLM’s national OHV strategy has evolved through federal legislation and regulations. An increase in the popularity and widespread use of OHVs on public lands in the 1960s and 1970s demonstrated a need for a unified federal policy. Executive Order (EO) 11644 “Use of Off-Road Vehicles on Public Lands” was signed by Richard Nixon in 1972 and amended by EO 11989 “Off-road Vehicles on Public Lands” issued by the Carter administration in 1977. Together, these establish federal land management agencies’ directives to implement policies to procedurally control and direct use of OHVs on public lands. Specifically, the purpose of EO 11644 was “to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands” (EO 11664 Sec.1).

In 1979, the BLM developed OHV regulations in response to these Executive Orders (43 Code of Federal Regulations (CFR) 8340) and under the authority of various public laws including the Federal Land Policy and Management Act (FLPMA), Taylor Grazing Act,



Endangered Species Act, and the National Trails System Act. The purpose of the regulation was “to establish criteria for designating public lands as open, limited, or closed to the use of off-road vehicles and for establishing controls governing the use and operation of off-road vehicles in such areas” (§8340-1) with three primary objectives, “to protect the resources of the public lands, to promote safety of all users of the lands, and to minimize conflicts among the various use of those lands” (§8340-2).

Subsequent external and internal reviews of the BLM’s implementation of the Executive Orders identified numerous resource concerns (1979 Council of Environment Quality review of Off-Road Vehicles on Public Land and the 1991 Department of Interior’s Inspector General’s report on BLM’s management of OHV activities). Those reviews prompted the BLM to establish and implement land use planning documents currently in place such as the “National Management Strategy for BLM Motorized Off-Highway Vehicle Use on Public Lands” (2001) and the “Land Use Planning Handbook” (2005). These directives require all managerial units to establish a road and trail system to help improve access and recreational experiences as well as protect resources from environmental impacts of OHV recreation. The agency is also directed to make the best use of science and public involvement in the travel management planning process and to improve the use of information, education, and outreach to explain and enforce the new systems. The objectives underscore a new commitment on the part of the BLM to understand and incorporate the needs and opinions of the various OHV recreation stakeholders.

### *III.1.b. Other Agency Efforts to Analyze the Management of OHV Use*

In reviewing the Richfield DEIS, it is useful to examine other examples of agency planning processes that have perhaps done more extensive data gathering and analysis. A programmatic EIS, which is directly relevant to discussion of recreation planning, is a joint agency document developed by the USFS and BLM regarding OHV recreation in Montana, North Dakota, and portions of South Dakota (USDA Forest Service and USDI Bureau of Land Management, 2001). In recognizing that OHV activities intermingled across lands managed by the different agencies and the variety of OHV recreation opportunities given the diversity of landforms and eco-regions in the planning area (similar to the BLM Richfield District), they developed a joint plan in order to provide consistent, thus potentially better, policies across land boundaries. Besides attempting to mitigate impacts due to increased use of OHVs on these lands, the EIS provides “direction for subsequent site-specific planning for motorized recreation opportunities” (USDA Forest Service and USDI Bureau of Land Management, 2001, Chapter 1, p.1).

The agencies identified two distinct decision levels for travel planning purposes. Decision Level One “provides direction for acceptable uses and protection measures” and also “identifies goals, objectives, standards and guide-lines through site-specific planning” (USDA Forest Service and USDI Bureau of Land Management, 2001, Appendix B, p.215). This level is the FEIS itself. Decision Level Two needs to address site specific policies that entail “analysis of site-specific road and trail management designed to achieve goals and objectives of the forest plan and resource management plan” (USDA Forest Service and USDI Bureau of Land Management, 2001, Appendix B, p.215). This

could be project, activity, or site-specific planning and would require detailed analysis of information such as road conditions and uses with an emphasis on planning at the local level. The overriding goal is to produce a travel plan that identifies transportation routes, change in status of existing routes, and deal with other issues such as infrastructural improvements, facility construction and maintenance, legal access, etc. (USDA Forest Service and USDI Bureau of Land Management, 2001, Appendix B).

Travel planning based on documents produced through the NEPA process requires assessment of a variety of issues and impacts resulting from recreation on public lands. Obvious resource impacts that need to be addressed include minerals, air quality, soil, aquatic resources, wildlife, cultural resources, and vegetation. However, other issues that need consideration include recreation user conflicts, impacts to motorized and non-motorized recreationists, visual quality, and the effects of the alternatives on Wilderness Study Areas. In terms of social groups affected by policy alternatives, planners need to consider impacts to older recreationists, the disabled, lessees and permittees, environmental advocacy groups, rural communities, as well as industries and businesses economically affected by planning alternatives and decisions. The planning documents also need to clarify unavoidable adverse impacts, short-term/long-term productivity, and irreversible or irretrievable resources commitments.

When planning to effectively and consistently address issues that arise from the use of OHVs on BLM land, the agency has developed a guiding manual, "National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands" (Bureau of Land Management, 2001). The stated purpose of this manual:

is to help the BLM field manager implement on-the-ground solutions to motorized OHV recreation and access issues, protect public land resources, and make more effective use of existing staff and funding, and pursue additional resources to successfully accomplish this strategy (Bureau of Land Management, 2001, p.2).

As mentioned elsewhere in this report, the BLM guidelines for socioeconomic analysis are relevant to the discussion of recreation issues. Specifically as they relate to recreational activities on BLM Richfield District lands, most of those topics can be addressed by gathering new data or (if available) utilizing secondary data. For example, residents in local communities could be surveyed to help identify places in the district where they recreate, what types of recreation they participate in, and how a change in policy on those sites would directly affect their personal use. This information along with potential changes in economic impacts, population dynamics, community makeup (e.g., rural to urban), etc. would provide a more complete understanding of the dynamics involved in analyses of plan alternatives and help assist planners and their partners in determining preferred tradeoffs in forming future plans (for an example of the use of socioeconomic data to help determine impacts to OHV user groups and other stakeholders under different plan alternatives, see USDA Forest Service and USDI Bureau of Land Management, 2001, Chapter 3). But in the absence of that data, it is



difficult analyze the impact of proposed land use changes in a rigorous and objective manner.

### **III.2 OHV Users Research Studies**

The public's demand for off-highway vehicle recreation in the United States has continued to increase dramatically since 1979. National studies show large gains in both participation (up 174% from 1993-2003) and ridership (Cordell et al., 2005). During the 1960s and 1970s, there were many OHV studies conducted as the sport and its potential environmental impacts first caught the attention of researchers and public officials. Though ecological impact findings from these studies may still be valid, the documentation of OHV users' opinions and behaviors do not necessarily represent those of today's riders. In recent years a more diverse segment of the public participates, new activities like driving All-Terrain Vehicles (ATVs) now dominate the sport, and cultural phenomena like the X-games and motocross influence how younger riders view their sport. These and other social and technological changes point to the need for reevaluating the motorized vehicle recreationists.

#### *III.2.a. OHV Managers' Perceptions of Issues*

A survey that focused specifically on managers' opinions concerning OHV issues was conducted by Chavez and Knap (2004). The sample consisted of 38 managers of OHV areas in National Forests in California. Managers were asked whether they had observed a series of natural resource, social institution, and interpersonal relations problems involving OHV users. Only five items were reported by 50% or more of managers: soil erosion/trampling (73%), 4-wheelers going off established trails (73%), OHV users going too fast (58%), soil erosion/compaction (56%), and lack of safety equipment and clothes (51%). Interpersonal relations problems were noted much less frequently: conflict between OHVs and hikers/backpackers (18%), conflict with mountain bikers (16%), and conflict with horseback riders (13%). It would appear from these results that managers see little in the way of conflict among user groups involving OHVs.

Regarding management actions, managers seemed to gravitate towards certain types of indirect and direct or resource hardening management actions to encourage compliance with OHV rules. Posters/signs, bulletin boards, use ethics information, maps, and brochures were indirect management actions used by roughly half of respondents. Other indirect management actions, such as public communication, education, and public-private financial or informational partnerships, were used by a quarter of respondents or less. Only one direct management or resource hardening action, law enforcement, was used by a majority of managers, with closing or limiting use of areas and relocating or designating OHV trails coming in a distant second and third.

Managers also indicated utilizing public contact management activities characterized by the authors as "bridge building" strategies. One type of bridge building action, personal contacts, was used by a large majority (85%) of managers, while all others were used by one-third or less (e.g., attending OHV club meetings, adopt-a-trail programs,



partnerships, etc.). Interestingly, bridge building management actions involving personal contacts were rated the most often used and most effective management tool when dealing with four of the six most frequently mentioned management problems reported by at least 50% of managers (soil erosion, OHVs going too fast, soil compaction, and litter or trash on roads and trails).

### *III.2.b. Rural Nature of OHV Users*

Studies have analyzed residence in a number of ways depending on the scale and goals of the study, and the population distribution of the state or region. In spite of these differences in reporting, the disproportionate representation of rural residents in the samples is frequently mentioned (Cordell et al., 2005; Fisher, Blahna, & Bahr, 2001). It would appear that OHV motorized recreation is more popular with rural residents than those from urban areas who tend to engage in non-motorized outdoor recreation activities such as backpacking, mountain biking, and wilderness recreation (Carothers, Vaske, & Donnelly, 2001; Ewert, 1998; Shelby & Tokarczyk, 2002). Prior to management actions that would limit or restrict OHV activities, managers should consider the importance that people living in rural areas place on OHV riding.

### *III.2.c. Diverse Values Attached to OHV Recreation*

Though several studies have shown recreationists place considerable importance on riding skill development and feeling in control of their vehicles, such as participants in the Moab Easter Jeep Safari (Reiter, Blahna, & Von Koch, 1998) and riders at the Saint Anthony Sand Dunes (SASD) in Idaho (Wagoner, 2006), respondents also place a great degree of importance on the *social* and *environmental* aspects of the OHV experience. Several research studies have found the *social aspects* of the OHV experience, such as being with friends and family and socializing, were ranked in the top three items in terms of importance (Reiter, Blahna, & Von Koch, 1998; Wagoner, 2006). The high ratings given to the social component seem in keeping with the observation made by several authors regarding the almost exclusively group nature of motorized recreation. Respondents also place great importance on the *natural* and *environmental* aspects of motorized recreation. Items of this type included enjoying an area's scenery and viewing wildlife, and were often listed among the most important reasons for riding. Natural and environmental factors seemed to be especially important for event and site specific studies such as the Moab Easter Jeep Safari (Reiter, Blahna, & Von Koch, 1998) or riding at Little Sahara Sand Dunes (LSSD) (Dean, 1997), indicating a strong desire to enjoy the unique scenery of these areas.

Given the importance of *social* and *environmental* aspects of the experience to the OHVers studied, a picture of these users far different than that painted by some environmental groups and much of the general public begins to emerge. Agency and non-profit leaders have summed up the wider public's feelings towards motorized recreationists as, "*The general public is seeing the OHV community as a group with a lack of respect*" (Davis et al., 2005). Conservation organizations such as the Sierra Club and The Greater Yellowstone Coalitions have made statements such as, "[roads facilitate] *access for damaging off-road vehicles and rip away quiet, secure habitat many wildlife species need to survive and people seek to find.*" (Beswick, 2004) and, "*Across the*

country, ORVs are trashing national forests and parks, turning natural areas into raceways” (Becker, 2003). The findings reviewed here indicate many OHV riders operate on a somewhat different model from the callous land users imagined by the public and described by these organizations. It must be remembered motivations will vary based on the nature of the recreation destination, and motorized users are not necessarily the monotypic recreationists they are often assumed to be (Davenport et al., 1999). Destinations such as SASD or LSSD seem to attract individuals primarily interested, at least during their visits to those locations, in challenge and skill testing recreation; destinations like the Moab area seem to attract more scenery and wildlife focused OHVers. Having different recreation styles at different locations is not only acceptable; it may be desirable from a management standpoint.

Open access “play” areas where OHV related resource degradation is minimal (e.g., the sand dunes at SASD or LSSD) provide riding opportunities for those interested in the “thrills and chills” aspects of OHVing. Clearly labeling and marketing these areas for this purpose, and other more environmentally sensitive areas as “environmentally responsible recreation only,” may provide a suitable and legal outlet for the thrills and challenge some users desire, who might otherwise be responsible for some of the worst damage to other areas. Such a system of “sacrificial” areas would require better planning and cooperation between agencies and management units than currently exists.

#### *III.2.d. Perceived Crowding and Conflict*

Conflict and crowding do not appear to be prominent issues among OHV recreationists. Conflict was not an issue for motorized recreationists in any of the studies reviewed (Reiter, Blahna, & Von Koch, 1998; Dean, 1997; Wagoner, 2006). More than three quarters of respondents in those studies never or rarely felt they were in conflict with other recreationists. Crowding and unacceptable use levels were non-issues for roughly three-fourths of those surveyed.

Do motorized recreationists commonly feel conflict and crowding? The studies reviewed here seem to indicate they do not, even in highly used areas such as LSSD. This seems to draw into question the need for management actions such as use limits and activity specific zoning, which are commonly used to control these problems. None of the studies reviewed specifically addressed the reasons conflict and crowding among motorized recreationists are so rare. Potential reasons for motorized versus non motorized conflict have been addressed in the recreation literature. Recreation conflict literature would predict that fast moving OHVers would experience little conflict with non-motorized users, while these non-motorized users would experience elevated conflict levels attributable to the OHVers (i.e., an asymmetrical conflict situation) (Adelman, Heberline, & Bonnickson, 1982). This conflict is described as occurring because the faster moving user interferes with the ability of the slow user to have their desired experience or because of an imagined dissimilarity between the two groups. No similar research has been done to explain the lack of significant conflict among different OHV types. Several interesting trends in the referenced studies offer potential explanations and are described in following sections.



### *III.2.e. User Skill Level and Experience*

Most research studies suggest the typical motorized user has participated in the sport for a number of years and considers him/herself a skilled rider. Studies have repeatedly shown the average OHVer considers him/herself as moderately to highly skilled, with greater than 75% of respondents in each study rating themselves as at least moderately skilled (Reiter, Blahna, & Von Koch, 1998; Dean, 1997; Wagoner, 2006; Fisher, Blahna, & Bahr, 2001). Additionally, these studies indicate the typical OHVer has well over ten years of experience in the sport and is a repeat visitor to the destination where they were surveyed. The average OHVer also appears to make numerous trips (often more than 10) to do their activity during a typical year. Similarly, those surveyed at specific motorized destinations often made multiple trips to that location during the year (Reiter, Blahna, & Von Koch, 1998; Dean, 1997). The picture emerging from these studies seems to be that the “average” OHV rider is not casually involved in the sport, but is instead often very committed to participation in one or more types of motorized recreation. Additionally, in a number of studies (e.g., Wagoner, 2006; Fisher, Blahna, & Bahr, 2001), a small segment of the population was shown to be extremely dedicated to OHVing, making numerous trips each year. When the high cost of the initial equipment purchase necessary to participate in this activity is considered, relative to hiking, skiing or other outdoor recreation activities, the commitment placed on OHVing by some participants becomes potentially even greater. This is not to imply all OHV riders are “experts” on whom education and outreach would be wasted; the large increase in participants reported by the USFS, 174% from 1993-2003, suggests the population of new users will continue to increase (Cordell et al., 2005).

### *III.2.f. OHV Management Issues:*

Opinions concerning management actions and facility development varied widely across research studies. Despite the fact management often has a very regional or local focus, it is possible to glean trends and common issues from those studies. Because management issues will vary by the type of survey (e.g., site specific versus statewide), the review of these issues has been organized by study focus where possible.

General OHV studies (e.g., Fisher, Blahna, and Bahr, 2001) frequently reported trail and regulation related issues as the most important or the most in need of attention. The items most in need of improvement were the selection or availability of trails, establishing/improving trails, and providing trail connections. In other OHV studies, expanding access to trail systems and providing connecting trails were commonly cited needs. These issues appear to be more common in areas with little publicly held land (e.g., Pennsylvania and Michigan), but were also mentioned in areas with significant public holdings (e.g., Minnesota and Utah). Other frequently mentioned trail related needs included better trail maintenance, improved signage, and increased litter pick-up.

Policies, regulations, and related enforcement were frequently mentioned in OHV studies. At SASD, recreationists stated there was no need to increase *or* there was a need to decrease regulation and law enforcement. Interestingly, at LSSD there was strong support for increased enforcement of certain rules or a sense that a regulation/rule related violation was a problem (primarily campground, drug/alcohol, and safety related issues).



It seems motorized users have conflicting ideas about what they want enforced and how they want that enforcement handled. Safety (irresponsible riding or intoxication) and noise issues seem generally to be considered big problems in a number of locations, and correspondingly, support for controlling these problems is high. In addition to this specifically targeted enforcement, several studies have shown high levels of support for increasing agency-public communication and information exchange concerning behavioral expectations and regulations. Because indirect approaches to management are preferred and action is desired and needed to deal with certain problems, agency outreach and targeted rules and regulation education should be utilized where possible. These indirect management approaches have been shown to increase rule compliance (see Oliver, Roggenbuck, & Watson, 1985; Widner & Roggenbuck, 2000), are popular with users, and may provide the secondary benefit of increasing OHVer access to site information.

Studies have demonstrated a consistent willingness to pay camping and access fees among OHVers. In fact, at the Little Sahara Sand Dunes where a fee system was in place at the time of the survey, a majority of users were content with the current fee or were willing to pay an increased fee (Dean, 1997). A majority of OHVers did not take issue with “paying-to-play” at these destinations. The acceptance of fees by outdoor recreationists in general has been noted at a number of primarily non-motorized recreation locations (see Williams & Black, 2002 for a review of relevant studies) and in a review of print media responses to the Forest Service's Fee Demo program (Williams & Black, 2002). Opinions about fees have been shown to be significantly more positive when tangible local results from the fees are shown (Wondolleck & Yaffee, 2000).

Several other common issues were important in site and event specific studies. A lack of information was a commonly mentioned problem; in particular, respondents visiting Saint Anthony Sand Dunes indicated a need for impact reduction information (Wagoner, 2006). As mentioned previously, behavioral issues (reckless drivers, children playing near OHVs, noise during quiet hours, drinking, and speeding) were also problems for site specific visitors. Facility development issues were the final common concerns. In high use areas such as SASD and LSSD, expanding camping and parking opportunities and water/electric hookups were highly supported. Having better facilities was understandably important for these visitors, as overnight visitors to SASD and LSSD often use recreational vehicles that require large amounts of flat parking space and utility hookups (Wagoner, 2006; Dean, 1997).

Most site specific OHV studies suggest environmental items among the major unaddressed concerns or important issues. Litter was mentioned by three studies, vegetation and wildlife impacts by two, and cultural/archaeological site impacts by one other. The high rankings given to environmental and preservation issues shows a concern for resource protection that is not typically associated with motorized recreationists. Recreationists appear to support the idea of resource protection and are troubled by the deterioration of environmental conditions.

## Section IV: Social

### IV.1 Baseline Social Context: Geographic and Other Disaggregation Issues

As was noted previously in the Phase I report, a major limitation of the RMP/DEIS involves a failure to examine socioeconomic distinctions that may characterize spatially-differentiated communities located in various portions of the area managed by the Richfield Field Office. Even a perfunctory reconnaissance of communities scattered across the area would reveal differences in socioeconomic conditions that could be expected to influence the relationships of local populations to public land resources. To illustrate this point, we first draw upon Census Tract data from the 2000 Census of Population to evaluate selected population characteristics in three distinct areas within the broader management area. We then turn attention to data from two recent social surveys conducted in portions of the management area to further examine differences that characterize particular portions of the area and subsets of the local populations that live there.

#### *IV.1.a. Disaggregation Based on 2000 Census Data*

The northern portion of the management area includes a portion of Sanpete County encompassing the communities of Mount Pleasant, Moroni, Spring City, Ephraim, Manti, Fayette, Gunnison, Centerfield and Mayfield. This “cluster” of small towns and surrounding rural areas is encompassed by Census Tracts 9721, 9722, 9723, 9724 and 9725, all in Sanpete County. Located at some distance from the I-15 corridor, this area is characterized by substantial agricultural land use, with limited commercial activity centered in the small towns scattered from north to south along State Routes 132 and 28 and a portion of U.S. Highway 89.

A second distinct cluster of communities is located in Sevier County, in the western portion of the management area. This cluster stretches along the I-70 corridor, from Salina on the northeast down to Richfield and the nearby towns of Joseph and Sevier to the southwest. This area is encompassed by Census Tracts 9751, 9752, 9753, 9754 and 9755. Richfield and Salina are small urban areas that exhibit substantial commercial activity due to their locations along a major interstate highway and their roles as trade centers for surrounding smaller towns and rural areas.

A third cluster of communities considered in this comparison includes a portion of western Wayne County that extends along State Highway 24 and includes the towns of Loa, Lyman, Bicknell, Torrey and Teasdale. This cluster of small towns is encompassed by Block Groups 1 and 2 in Census Tract 9791. Spatially isolated from major transportation corridors such as I-15 and I-70, this area has traditionally been heavily dependent on agriculture and other resource-based economic activities. However, the presence of Capitol Reef National Park immediately east of Torrey has in recent years stimulated a growing economic reliance on tourism, as well as a substantial increase in seasonal and vacation home development.

Although census data do not provide for direct measurement of social and economic linkages to public land resources, there are several indicators that do provide at least indirect evidence regarding the ways that selected populations may vary with respect to such linkages. One key variable that does help to characterize such variation involves employment by industry for persons age 16 and older. As indicated in Table 2, the three community clusters that were described above exhibit substantial variation with respect to employment in several economic sectors that in various ways reflect different linkages to surrounding lands and resources.

Looking first at employment in agriculture/forestry/fishing/hunting, we see that in the more urbanized Sevier County community cluster a relatively small percentage (4.8%) of employed residents were involved in this sector of the economy. In the more rural Sanpete County community cluster, the percentage of persons employed in this sector was somewhat higher (6.3%). In contrast, the more spatially isolated cluster of communities located in western Wayne County exhibited a substantially higher concentration of employment in agriculture/forestry/fishing/hunting (16.7%). Despite the observation that economic activities linked to tourism and recreation have expanded considerably in recent years, western Wayne County appears to remain more economically dependent on a more traditional agriculture and forestry-based economy than is the case in the other areas examined here.

**Table 2 Percent of Total Employment in Selected Industries Among Employed Civilians Age 16 and Older.**

	<u>Sanpete County Communities</u>	<u>Sevier County Communities</u>	<u>Western Wayne County Communities</u>
Agriculture, Forestry, Hunting or Fishing	6.9%	4.8%	16.7%
Mining	3.4%	3.4%	14.3%
Arts, Entertainment, Recreation, Accommodation and Food Services	5.8%	9.4%	12.2%

2000 Census SF-3 Sample Data; <http://factfinder.census.gov>



Similar variability is evident when employment in the mining industry is considered. In both the Sanpete County cluster and the Sevier County cluster only 3.4% of employed persons were classified as working in the mining industry. In contrast, 14.3% of those employed in the western Wayne County cluster worked in that industry, reinforcing the observation that this is a more “resource dependent” area than is the case in other portions of the management area.

Employment in the arts, entertainment, recreation, accommodation and food services sector is at least somewhat indicative of the kind of activity associated with tourism and recreation-based businesses, though such employment is often also highly evident in areas such as those located along major transportation routes where “pass-through” visitation is extensive. As indicated in Table 2, employment in this sector was fairly low (5.8% of total employment) in the Sanpete County cluster. This is hardly surprising given the distance of that area from interstate highways and major tourist attractions. A considerably higher percentage of employment was concentrated in this sector in the Sevier County cluster (9.4%), consistent with its location along Interstate 70. An even higher percentage of total employment occurred in this service-oriented sector in western Wayne County (12.2%), reflecting the presence of a growing tourism-based economy in that area.

Selected data on housing characteristics also help to illustrate some of the differences that are evident across these distinct community clusters. As noted in Table 3, the percentage of houses classified as “vacant” during the spring time period when data were collected for the 2000 Census varies considerably across the three areas. While the percent of housing units classified as vacant was fairly similar in the Sevier County cluster (13.3%) and the Sanpete County cluster (16.9%), vacant units comprised one-third (33.1%) of housing in the western Wayne County cluster. This is undoubtedly a reflection of the large number of seasonal and vacation homes that have been built in recent years in this portion of Wayne County, and the tendency for many of those homes to be unoccupied during the April time period when the U.S. Census is conducted.

**Table 3 Selected Housing Characteristics for Community Cluster Areas (percentages).**

	<u>Sanpete County Communities</u>	<u>Sevier County Communities</u>	<u>Western Wayne County Communities</u>
Percent of housing units vacant	16.9%	13.38%	33.1%
Percent of housing units using wood as primary heat source	2.1%	2.2%	15.2%

2000 Census SF-3 Sample Data; <http://factfinder.census.gov>

Another indicator focused on housing characteristics that reveals distinctions across the three cluster areas involves the primary heat source used within residential units. Census data reported in Table 3 indicate that households in the western Wayne County cluster were far more likely to report relying on wood fuel as a primary heat source (15.2% of housing units) than was the case in either the Sanpete County cluster (2.1%) or the Sevier County cluster (2.2%). This difference is likely attributable in part to the higher proportion of seasonal and vacation homes in the western Wayne County area. Because many seasonal homes in this area receive only limited use during the winter months, the need for central heating systems utilizing natural gas, propane or electricity is less widespread than in areas where a higher proportion of homes are occupied on a year-round basis. Use of wood as a primary heat source links residents of such homes more directly to public land areas that are the primary sources of fuelwood in this area.

It is important to note that comparisons based on data from the 2000 Census do not allow a complete characterization of the ways in which people and community areas within the management area may be linked socially and economically to surrounding public lands. Only a limited number of the indicators available from census data can be assumed to provide a reasonable means of assessing such linkages. Moreover, data from the 2000 Census are now more than six years old. As a result, they may not accurately represent current social and economic conditions in specific areas that may have experienced fairly extensive economic and demographic changes during the past several years. However, the point to be made here is that such data do provide access to at least some level of insight regarding such linkages, and they also provide a basis for documenting variability in local social and economic conditions when the broader management area is disaggregated into smaller, spatially distinct units. It is difficult to justify the failure of the DEIS to utilize such readily-accessible data or to consider such variability, especially since the BLM Manual (2005) explicitly denotes that the agency “must utilize social science in the preparation of informed, sustainable land use planning decisions” (Appendix D, page 1).

#### *IV.1.b. Disaggregation Based on Social Survey Data*

Several social surveys have been conducted in recent years by researchers at Utah State University in portions of Utah that encompass parts of the Richfield resource management area. Although some published analyses derived from those data are available in various professional journals, for the most part the data presented in those publications has not been analyzed in a form that would be especially useful in helping to inform the BLM in its resource management planning process. However, as indicated in the agency’s own land use planning handbook (BLM Manual, 2005), assessment efforts should include efforts to “review and summarize the relevant published and **unpublished** literature on the history, economy, and social system(s) of the study area (Appendix D, page 3, emphasis added). In short, those responsible for conducting the social and economic assessment should be expected to search for unpublished reports and data sources that would allow them to “characterize the social structure, activities, and values of... communities and groups” in the study area (BLM Manual 2005, Appendix D, page 3).



## IV.2 Results from Recent Survey Research Projects

### *IV.2.a. Western Wayne County and Escalante surveys (2001)*

The first of two social surveys that will be referenced here was conducted in 2001 by the Institute for Social Science Research on Natural Resources at Utah State University. This survey focused on five rural community areas scattered across the Intermountain West; included among these areas were the cluster of communities located in western Wayne County (Loa, Bicknell, Lyman, Torrey and Teasdale) as well as the town of Escalante in Garfield County. A report summarizing key findings from this survey (Krannich and Brehm, 2003) was distributed to local public officials in the study areas in July, 2003. Responses were obtained from 133 randomly selected adults in Escalante and from 167 randomly selected adults in western Wayne County; survey response rates were over 80% in both areas. The western Wayne County cluster falls within the area administered by the BLM Richfield Field Office. Although Escalante is located outside of the management area, data from that community can still be used to provide a point of comparison for assessing conditions that are likely to prevail in other similar small, isolated rural towns located elsewhere in Garfield County and throughout the analysis area.

Respondents to this survey were asked to answer a variety of questions focusing on factors that they might consider important for maintaining and improving the future quality of life in their areas, including several items pertaining specifically to resource management concerns. Response patterns to those questions are summarized in Table 4. When asked about the importance of “preserving opportunities for motorized recreation” (i.e., snowmobiles, ATVs, etc.), 46.7% of respondents in western Wayne County and 60% of respondents in Escalante identified this as being very important to extremely important [e.g., response values of 6 or 7 on a scale ranging from 1 (not at all important) to 7 (extremely important)]. A related question asked respondents to indicate the degree to which they would support or oppose a policy that would reduce access to public lands adjoining their community for motorized recreational uses by 50%. A total of 54.3% of respondents in the western Wayne County area and 70.5% of those from Escalante indicated that they would be very opposed or strongly opposed to such an action.

Residents of these communities expressed strong support for the notion that it is important to “preserve traditional ways of life;” 65.5% of respondents from the western Wayne County cluster of communities and 76.3% of those from Escalante rated this as very or extremely important. When asked about the importance of “preserving opportunities for traditional multiple use activities like grazing or logging on public lands,” 78.7% of respondents in western Wayne County and 87.1% of those from Escalante indicated that they consider this very important or extremely important. Responses to a question about the “importance of preserving roadless areas on public lands” generated substantially different response patterns, with only 32% of respondents from western Wayne County and 21.9% of those from Escalante rating this as very or extremely important. A question about the importance of “implementing new policies to better protect local environmental quality” elicited “very or extremely important”



answers from 36.8% of western Wayne County respondents, and just 17.1% of Escalante respondents.

**Table 4 Percentage of Escalante and western Wayne County survey respondents attaching high importance or expressing strong agreement regarding selected resource management issues.**

	<u>Western Wayne County</u>	<u>Escalante</u>
Importance of preserving opportunities for motorized recreation*	46.7%	60.0%
Opposition to 50% decrease in access to nearby public lands for motorized recreation**	54.3%	70.5%
Importance of preserving traditional ways of life*	65.5%	76.3%
Importance of preserving opportunities for traditional multiple use activities like grazing or logging on public lands*	78.7%	87.1%
Importance of preserving roadless areas on public lands*	32.0%	21.9%
Importance of implementing new policies to better protect local environmental quality*	36.8%	17.1%

\* Percentages represent the combined total of responses falling at response values of 6 or 7 on a scale ranging from 1 ("not at all important") to 7 ("extremely important").

\*\* Percentages represent the combined total of responses falling at response values of 1 or 2 on a scale ranging from 1 ("strongly oppose") to 7 ("strongly support").

On balance, the responses to this series of questions indicate that residents of the cluster of communities in western Wayne County and residents of Escalante in Garfield County are strongly supportive of management practices that would maintain traditional uses of and access to the public lands that surround their communities. They do not tend to support reductions in access for motorized recreation, and are not highly supportive of policies designed to protect roadless areas specifically or to increase levels of resource protection to promote environmental quality. In both areas, and especially in the Escalante area, there is a high level of adherence to traditional value orientations regarding the uses of and access to public land resources.

#### *IV.2.b. Wayne County and Garfield County surveys, 2004*

The second social survey providing information relevant to the current assessment was conducted in 2004 by the Institute for Social Science Research on Natural Resources at Utah State University. This study involved random sample surveys of both year-round and seasonal residents in a five-county region in southwestern Utah (Garfield, Iron, Kane, Washington and Wayne counties). An overview of the research design and selected

analytic results are available in a Utah State University doctoral dissertation completed recently by Tracy Williams (2006). For the combined five-county study area completed questionnaires were obtained from 1,409 adult residential property owners, representing a 65% overall response rate to the survey.

This survey included a variety of questions focusing explicitly on residents' attitudes about public land management issues and policies. The data from this survey represent only portions of the area administered by the BLM Richfield Field Office (e.g., parts of Wayne and Garfield counties), and do not extend to provide coverage of areas in the northern and western portions of the management area that fall within Sevier, Sanpete, or Juab counties. To provide a point of comparison, the survey results that are summarized below include data from Garfield and Wayne counties, and also data from Iron County. Because of its location on the I-15 corridor and the presence of an urban community (Cedar City), Iron County shares some of the characteristics of Sevier County, and as such provides a useful point of comparison when evaluating responses from Garfield and Wayne County residents. Because they contain areas where seasonal and vacation homes exist in substantial numbers, examination of these three counties simultaneously allows a disaggregation of area residents' attitudes and values on the basis of spatial locations (county of residence) and on the basis of residence type (year-round vs. seasonal residence).

Patterns of responses to twelve selected questions pertaining to public land management issues are summarized in Table 5. In both Wayne and Garfield counties, a majority of year-around residents expressed support for mineral exploration and extraction, thinning of forested areas through commercial logging, increased road access to public land recreation areas, increased deer and elk hunting opportunity, and increased enforcement of rules requiring motorized vehicles to stay on designated roads and trails. A very large majority of year-round residents of these two counties expressed opposition to policies that would reduce timber harvest sales on public lands, establish more designated wilderness areas, or decrease levels of livestock grazing. Year-round residents of Wayne and Garfield counties were also unlikely to express support for policies that protect endangered species. By comparison, year-round residents of more urbanized Iron County were considerably less likely to support mineral exploration and extraction, more likely to support protection of endangered species, and less opposed to reductions in timber harvest, designation of more wilderness areas, or reductions in livestock grazing on public lands. On balance, these data indicate that year-round residents of Wayne and Garfield counties more highly supportive of traditional commodity production uses of public lands than are year-round residents of Iron County, and less supportive of policies that would prioritize resource protection or preservation.

Also evident in Table 5 is a tendency for year-round and seasonal residents of these counties to exhibit considerably different attitudes and values about public land management issues. For example, in Wayne County, 66.2% of year-round residents expressed agreement with the idea that mineral exploration and extraction should be encouraged on public lands, while only 28.8% of seasonal residents were in agreement. Similar divergence was evident in Garfield County (76.2% of year-round residents agreed

vs. 35.9% of seasonal residents) and in Iron County (54.8% of year-round residents agreed vs. 24.6% of seasonal residents). Similar disparities exist for most of the other questions pertaining to public land management, with especially sharp differences evident when respondents were asked to express their viewpoints about timber harvest, wilderness designation, habitat protection, endangered species protection, and livestock grazing. When compared to seasonal residents, year-round residents of these counties are uniformly more supportive of traditional commodity production uses of public lands, and less supportive of resource protection or preservation.

**Table 5 Agreement or disagreement with selected public land management practices and policies among year-round and seasonal residents of Wayne, Garfield and Iron Counties, Utah. \***

	<b>Wayne County</b>		<b>Garfield County</b>		<b>Iron County</b>	
	<u>Year-round</u>	<u>Seasonal</u>	<u>Year-round</u>	<u>Seasonal</u>	<u>Year-round</u>	<u>Seasonal</u>
Agree with encouraging mineral exploration/extraction	66.2%	28.8%	76.2%	35.9%	54.8%	24.6%
Disagree with reducing timber harvest sales	82.2%	48.8%	85.7%	49.6%	64.5%	46.2%
Disagree with establishing more designated wilderness areas	83.6%	43.2%	80.7%	48.3%	60.6%	39.4%
Agree with encouraging protection of important fish/wildlife habitat	49.3%	80.7%	48.6%	66.2%	56.5%	69.7%
Agree with protecting endangered species	43.2%	75.7%	38.4%	62.0%	49.3%	63.6%
Agree with thinning of forested areas through commercial logging to reduce wildfire risk	86.0%	63.0%	91.8%	79.5%	84.0%	69.7%
Disagree with decreasing the level of livestock grazing	80.4%	45.8%	73.5%	42.5%	60.7%	51.5%
Agree with increasing road access to recreation areas	60.1%	38.2%	71.3%	52.4%	56.3%	55.1%
Agree with increasing deer and elk hunting opportunity	56.1%	31.7%	65.1%	45.2%	46.7%	28.0%
Agree with development of new trails for motorized recreation	49.4%	21.9%	60.0%	46.8%	43.5%	36.2%
Agree with increasing the number of hiking and biking trails	46.3%	61.4%	48.6%	58.1%	62.1%	66.2%
Agree with increased enforcement of rules requiring motorized vehicles to stay on designated trails	66.4%	76.5%	64.1%	72.3%	64.1%	78.3%

\*Percentages represent combined totals of “strongly agree/somewhat agree” or “strongly disagree/somewhat disagree” response categories.



In combination, data derived from the 2000 Census and from the two social surveys reveal several important facets of the social context that characterizes this resource management area. With a more urbanized population and a more diversified economy, Sevier County residents are less directly dependent on employment in resource-based industries than is true in other more remotely-situated portions of the management area. Residents of those portions of the area located at greatest distance from major transportation corridors and urban centers (e.g., areas in Wayne County, and by extension the adjoining area that is encompassed by Garfield county) are far more likely to be employed in resource-based industries, including both traditional “extractive” industries (agriculture, mining) and less traditional service sector industries that are linked to close proximity to National Parks and National Forests. Residents of these more remote rural areas where traditional resource-based economies remain firmly entrenched also exhibit attitudes and values that reflect a strong commitment to traditional commodity production uses of public land resources, and limited support for policies that would prioritize resource protection or preservation. At the same time, it is important to recognize that local attitudes and values are not entirely uniform, even in the areas where traditional lifeways and economic activities remain firmly entrenched. In particular, the views of people who own and occupy seasonal and vacation homes in these areas tend to differ sharply from those of year-round or “permanent” residents.

In short, there are important differences in the ways that social and economic linkages to public lands play out across spatially-differentiated portions of the resource management area, and across distinct social groups as well. It is not possible to “rigorously explore” or “objectively evaluate” the possible social impacts of proposed changes in resource management practices and priorities without first establishing an objective, data-based understanding of the social environment that characterizes the human communities that are scattered across the management area, or without using such data to examine the ways in which social organization, institutions, and social values vary across the particular segments of the spatial and social landscape. The illustrative data presented here clearly do not provide all of the information needed to conduct such an assessment. However, these data do reveal that the situation is far more complex, and far less uniform, than suggested by the superficial and conjectural analysis presented in the DEIS.

#### **IV.3 Potential Impacts from Energy Resource Development**

Considerable new energy development activity has emerged during the past two years in portions of the resource management area administered by the BLM Richfield Field Office. Oil is now being produced from one highly-productive well located near Richfield, and several additional wells are being drilled in the same general area. Local officials indicate that several companies are now involved in exploration and testing activities over a larger area, and there is widespread speculation that drilling for oil and gas will soon expand rapidly across a large portion of the resource management area.

In light of this emerging expansion of oil and gas exploration and development, it is important for the RMP/DEIS to address potential socioeconomic impacts that could occur

if such activities were to expand very rapidly. During the 1970s and 1980s large-scale energy resource development occurring throughout the Rocky Mountain region and the northern Great Plains generated adverse social and economic impacts in a number of rural communities affected by extremely rapid population growth. An extensive and readily accessible body of research literature documenting the impacts of western energy development provides a benchmark for considering the types of impacts that could occur in some portions of the resource management area if energy exploration and production does expand rapidly in the resource management area.

A review of the literature regarding social impacts of energy development suggests that a variety of disruptive effects can arise when development occurs rapidly and at a very large scale. Rapid in-migration of the labor force needed to man drilling rigs, production facilities, construction sites and industrial service operations can lead to population growth that quickly exceeds the adaptive capacity of many rural communities. Local communities and governments can find it difficult to meet the growth in demand for housing, public services and municipal infrastructure, particularly if such growth is not accompanied by a commensurate increase in tax revenues, up-front impact mitigation funds, or other fiscal resources. A mismatch between the locations where workers live and obtain services and the units of government that may stand to receive taxes or other revenues from energy development can leave affected communities without the fiscal resources needed to respond to growth-induced impacts. Even when such jurisdictional mismatches do not arise, a lag between the time when increased demands for facilities and services occur and when new revenues become available may contribute to fiscal distress for local governments.

Research focusing on western energy “boom towns” during the 1970s and 1980s has examined the occurrence of a variety of “social disruption” effects. The literature regarding the nature and extent of such effects is not entirely consistent, with some studies documenting extensive and severe disruptive consequences and others demonstrating only limited effects. This apparent variability in the occurrence and extensiveness of adverse effects is undoubtedly associated with differences in the context of individual impacted communities – including their size and existing levels of infrastructure and service capacity, their location and accessibility relative to other communities and service centers, the extent to which energy-induced growth can be anticipated and planned for in advance, the magnitude and pace of resource development activities, etc. Nevertheless, on balance it is clear from the available literature that very rapid growth and development associated with large-scale energy development are likely to generate changes that will in various ways negatively impact the well-being of local area populations.

Prior research highlights several key social impact dimensions that are of particular concern when rapid development and growth effects are severe. Increased rates of crime, delinquency, and various forms of social deviance such as substance abuse and family violence have been documented in a number of energy boom situations (Dixon 1978; Lantz and McKeown 1977; Freudenburg and Jones 1991). There is also consistent evidence that fear of crime increases sharply among the residents of impacted



communities during the boom phase of development (Krannich, Greider and Little 1985; Krannich, Berry and Greider 1989; Smith, Krannich and Hunter 2001; Hunter, Krannich and Smith 2002). The arrival of many new residents and associated declines in acquaintanceship and familiarity among community residents can contribute to reductions in informal helping behavior and reduced levels of interpersonal trust (Freudenburg 1986; Smith, Krannich and Hunter 2001), exacerbating these fear-of-crime effects.

Some boom town research has documented a relationship between rapid growth and adverse effects on residents' mental health, with associated increases in the case loads of mental health treatment centers (Dixon 1978; Freudenburg, Bacigalupi and Young 1982; Lantz and McKeown 1977; Weisz 1979). This is likely linked in part to declines in levels of social integration, which have been documented in multiple ways across numerous boom town contexts. Reduced levels of interpersonal familiarity, reduced interaction with and reliance upon neighbors, and less extensive friendship networks have been observed, contributing to an erosion of informal social structures that often provide important sources of social support and mutual aid for small-town residents, increased feelings of social isolation, and a decline in perceived social integration (see Brown, Dorius and Krannich 2005; Cortese 1982; Freudenburg 1986; Greider and Krannich 1984; Greider and Krannich 1985; Greider, Krannich and Berry 1991; Moen et al. 1981; Smith, Krannich and Hunter 2001).

Under these conditions, it is not surprising that boom town research has consistently documented a decline in levels of community satisfaction among residents of impacted communities (Brown, Geertsens and Krannich 1989; Brown, Dorius and Krannich 2005; Murdock and Schriener 1979; Smith, Krannich and Hunter 2001). Inevitably, rapid growth and the economic, demographic, social and physical changes that occur in affected areas can be expected to alter local residents' perceptions of their communities.

It is important for resource managers as well as local community officials to anticipate the potential for these types of disruptive social impacts in the event that energy development expands rapidly in the resource management area. At the same time, it is also important to acknowledge that prior research indicates that the social disruptions accompanying boom growth events tend to persist for only a limited period of time. Recent longitudinal analyses that have tracked western energy boom communities reveal that disruptive effects on social integration, localized social relationships, interpersonal trust, fear of crime, and community satisfaction are evident primarily during the period when growth effects are extremely rapid. Problems can also occur following a period of boom growth if there is an equally sharp "bust" period characterized by widespread unemployment and underemployment, outmigration, and general economic decline. However, a rebound in levels of social well-being has been observed in subsequent years when community stabilization occurs (see Brown, Dorius and Krannich 2005; Smith, Krannich and Hunter 2001). Resource managers and public officials need to recognize that the effects of energy development will shift over time, and be prepared both to address the adverse impacts that are likely to occur during boom-growth periods and to



capitalize on the potential for positive long-term effects on local economic development patterns, public infrastructure, and local service capacity.

## Literature Cited

*Copies of the materials cited in bold were provided to the Six County AOG as supporting material for this report.*

Adelman, B., Heberline, T., & Bonnickson, T. 1982. Social psychological explanations for the persistence of a conflict between paddling canoeists and motorcraft users in the Boundary Waters Canoe Area. *Leisure Sciences*, 5, 45-61.

Becker, A. 2003. ORVs keep out! *Sierra*, 88.

Beswick, P. 2004. Lands without Roads. *GYC Newsletter*, Fall 2004, p. 12.

Bureau of Land Management (see USDI-Bureau of Land Management)

**Brown, R.B., S.F. Dorius and R.S. Krannich. "The boom-bust-recovery cycle: Dynamics of change in community satisfaction and social integration in Delta, Utah." *Rural Sociology* 70 (1): 28-49.**

**Brown, R.B., H.R. Geertsens and R.S. Krannich. 1989. "Community satisfaction and social integration in a boom town: A longitudinal analysis." *Rural Sociology* 54: 568-586.**

Carothers, P., Vaske, J. J., & Donnelly, M. P. 2001. Social values versus interpersonal conflict among hikers and mountain bikers. *Leisure Sciences*, 23, 47-61.

Chavez, D. J., & Knap, N. E. 2004. *Issues and Actions for Off-highway Vehicle Management: National Forests in California* (Unpublished Report ). Riverside, CA: USDA Forest Service, Pacific Southwest Research Station.

Cordell, H. K., Betz, C. J., Green, G., & Owens, M. 2005. *Off-Highway Vehicle Recreation in the United States, Regions and States: A National Report from the National Survey on Recreation and the Environment (NSRE)*. U.S.D.A. Forest Service Southern Research Station.

Cortese, C.F. 1982. "The impacts of rapid growth on local organizations and community services." Pp. 115-136 in B. Weber and R. Howell (eds.), *Coping with Rapid Growth in Rural Communities*. Boulder, CO: Westview.

Davenport, M. A., Freimund, W. A., Borrie, W. T., Manning, R. E., Valliere, W. A., & Wang, B. 1999. *Examining Winter Visitor Use in Yellowstone National Park*. Paper presented at the Wilderness science in a time of change, Missoula.

- Davis, L., Walder, B., Smith, V., Bell, D., & Laws, J. 2005. *Evolving Images of Off-Road Recreation*. Paper presented at the National OHV Collaboration Summit, San Diego, CA.
- Dean, B. D. 1997. *Fulfillment of Visitors Expectations and Needs for Off-Road Vehicle Use at Little Sahara Recreation Area*. Unpublished Master's Thesis, Utah State University, Logan.
- Department of Economics. 2005. Six County AOG Oil Site Economic Impact Assessment. Utah State University, Logan, Utah.
- Dixon, M. 1978. *What Happened to Fairbanks? The Effects of the Trans-Alaska Oil Pipeline in the Community of Fairbanks, Alaska*. Boulder, CO: Westview.
- Ewert, A. W. 1998. A comparison of urban-proximate and urban-distant wilderness users on selected variables. *Environmental Management*, 22(6), 927-935.
- Fisher, A.L., Blahna, D.J., & Bahr, R. 2001. *Off Highway Vehicle Uses and Owner Preferences in Utah*. Institute for Outdoor Recreation and Tourism, Utah State University.
- Fletcher, Robert R., George W. Borden, and Robin Grumbles. Undated. Economic impacts of livestock grazing and recreation on the Arizona Strip. Final report submitted to the Arizona Strip Steering Committee.**
- Freudenburg, W.R. 1986. "The density of acquaintanceship: An overlooked variable in community research." *American Journal of Sociology* 92: 27-63.
- Freudenburg, W.R., L. Bacigalupi and C. Young. 1982. "Mental health consequences of rapid growth: A report from the longitudinal study of boom town mental health impacts." *Journal of Health and Human Resource Administration* 4: 334-352.
- Freudenburg, W.R. and R.E. Jones. 1991. "Criminal behavior and rapid community growth: Examining the evidence." *Rural Sociology* 56: 619-645.**
- Godfrey, E. Bruce and Verl L. Bagley. 1994. "Alternative measures of livestock dependency." In: Neil R. Rimbey and Diane E. Isaak, eds. Current Issues in Rangeland Economics – 1994. Western Regional Research Publication, Idaho Agricultural Experiment Station, University of Idaho. Moscow, Idaho.**
- Greider, T. and R.S. Krannich. 1985. "Neighboring patterns, social support and rapid growth: A comparison analysis from three western communities." *Sociological Perspectives* 28: 51-70.
- Greider, T., R.S. Krannich and E.H. Berry. 1991. "Local identity, solidarity and trust in changing rural communities." *Sociological Focus* 24: 263-282.



Krannich, R.S., E.H. Berry and T. Greider. 1989. "Fear of crime in rapidly changing rural communities: A longitudinal analysis." *Rural Sociology* 54: 195-212.

Hunter, L.M., R.S. Krannich and M.D. Smith. 2002. "Rural migration, rapid growth, and fear of crime." *Rural Sociology* 67(1): 71-89.

Krannich, R.S. and J.M. Brehm. 2003. *Rural Community Change in the Intermountain West: Executive Report*. Logan, Utah: Institute for Social Science Research on Natural Resources, Utah State University.

Krannich, R.S., T. Greider and R.L. Little. 1985. "Rapid growth and fear of crime: A four community comparison." *Rural Sociology* 50: 193-209.

Lantz, A. and R. McKeown. 1977. "Rapid growth and the impact on quality of life in rural communities: A case study." Denver Research Institute, University of Denver.

MIG, Inc. 2004. IMPLAN Pro, version 2.0: Social accounting and impact analysis software User's guide, Analysis Guide, and Data Guide. Minnesota IMPLAN Group, Inc. Stillwater, Minnesota.

MIG, Inc. 1999. IMPLAN Pro, version 2.0: Social accounting and impact analysis software User's guide, Analysis Guide, and Data Guide. Minnesota IMPLAN Group, Inc. Stillwater, Minnesota.

Moen, E., E. Boulding, J. Lillydahl and R. Palms (eds.). 1981. *Women and the Social Costs of Economic Development: Two Colorado Case Studies*. Boulder, CO: Westview.

Murdock, S.H. and E. Schriener. 1979. "Community service satisfaction and stages of community development: An examination of evidence from impacted communities." *Journal of the Community Development Society* 10: 109-124.

Oliver, S., Roggenbuck, J., & Watson, A. 1985. Education to reduce impacts in forest campgrounds. *Journal of Forestry*, 3, 234-236.

Reiter, D.K., Blahna, D.J., & Von Koch, R. 1998. *Off-Highway Vehicle Four-Wheeler Survey: A Summary Report of 1997 Moab Easter Jeep Safari Participants*. Institute for Outdoor Recreation and Tourism, Utah State University.

Rimbey, Neil R., T.D. Darden, L.A. Torell, J.A. Tanaka, L.W. VanTassell, and J.D. Wulforth. 2003. Ranch level economic impacts of public land grazing policy alternatives in the Bruneau Resource Area of Owyhee County, Idaho. Agricultural Economics Extension Series Number 03-05. Department of Agricultural Economics and Rural Sociology, University of Idaho. Moscow, Idaho.

Shelby, B., & Tokarczyk, J. 2002. *Oregon Shore Recreational Use Study*. Oregon Parks and Recreation Department.

Smith, M.D., R.S. Krannich and L.M. Hunter. 2001. "Growth, decline, stability, and disruption: A longitudinal analysis of social well-being in four western rural communities." *Rural Sociology* 66 (3): 425-450.

USDA-Forest Service and USDI-Bureau of Land Management. 2001. **Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota, and Portions of South Dakota.** (Summary, Chapters 1,2,3 and Appendix B provided)

USDI-Bureau of Land Management. 2001. *National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands.*

USDI-Bureau of Land Management. 2005. *BLM Manual. Appendix D: Social Issues in Land Use Planning Decisions.* Washington, D.C.: U.S. Department of Interior.

Utah Energy Office, 2004. Draft report: Economic impact of the drilling and completion of a natural gas well in the Uintah Basin. State of Utah Department of Natural Resources. Salt Lake City, Utah.

Wagoner, N. M. 2006. *Saint Anthony Sand Dunes Special Recreation Management Area: An Exploration of Conflict, Motorized Recreation Groups, and Community-Management Relations.* Unpublished Master's Thesis, Utah State University, Logan, UT.

Weisz, R. 1979. "Stress and mental health in a boom town." Pp. 31-47 in J. Davenport and J. Davenport (eds.), *Boom Towns and Human Services.* Laramie, WY: University of Wyoming Press

Widner, C., & Roggenbuck, J. 2000. Reducing theft of petrified wood at Petrified Forest National Park. *Journal of Interpretation Research*, 5(1), 1-18.

Williams, P. B., & Black, J. 2002. *Issues and Concerns Related to the USDA Forest Service's Recreational Fee Demonstration Program: A Synthesis of Published Literature, Critical Reports, Media Reports, Public Comments, and Likely Knowledge Gaps.* Washington: Recreation, Heritage, and Wilderness Program, USDA Forest Service.

Williams, T.L. 2006. *In the Midst of a Changing Landscape: Residents' Beliefs and Attitudes Toward Aspects of the American West.* Logan, Utah: Utah State University, PhD dissertation.

Wondolleck, J. M., & Yaffee, S. L. 2000. *Making collaboration work.* Washington, D.C.: Island Press.

## **Appendix A:**

### **Phase I Socioeconomic Analysis of Richfield Field Office Draft Land Management Plan DEIS**

Several USU faculty with backgrounds in regional economics, range economics, recreation management, and sociology have reviewed the socio-economic components of the Richfield BLM Field Office RMP/DEIS, at the request of the County Commissioners from the Six County AOG. The review was performed on several levels: adequacy of data, appropriateness of analysis, depth of discussion of socioeconomic issues, etc. The results of that review are summarized below.

#### **Overview**

The socioeconomic baseline report submitted by Booz-Allen in 2002 is not “wrong” in any particular sense. It uses standard data that are collected by credible sources. But it does not go into particular depth in discussing specific issues that characterize the social and economic factors that shape the five-county analysis area. The socioeconomic analysis of the alternatives in the RMP/DEIS is therefore very superficial because there is little or no original data upon which to measure any impacts that might arise from management variation between the Alternatives. To the extent that the Alternatives are likely to have an impact, the RMP/DEIS must respond with “cannot quantify” or rely upon coarse assumptions. As examples:

#### **4.1.3 Impacts from Vegetation**

“Insufficient information exist to quantify...”

#### **4.1.4 Impacts from Wildland Fire Management**

“The extent of socioeconomic impacts of fire cannot be projected...”

#### **4.1.5 Impacts from Forestry and Woodland Products**

“Insufficient information on current harvest and harvest potential (e.g., areas suitable for timber harvest is available to quantify...”

#### **4.1.7 Impacts from Recreation**

“Due to insufficient data, economic differences between the alternatives could not be quantified.”

#### **4.1.8 Impacts for Off-Highway Vehicles**

“Demand for OHV recreation use is likely to increase over time in the field office, although these increases are not quantifiable with existing data....The alternatives differ in the amount and types of OHV opportunities they provide. The differences are discussed qualitatively; insufficient information is available to quantify these differences.”

#### **4.1.9 Impacts from Land and Realty**



“The net impact on local government finances cannot be determined without detailed information...  
Some differences between the alternatives in disposals under FLPMA Section 203 are noted qualitatively....  
Neither the increased economic activity nor other social benefits or costs can be predicted...”

#### 4.1.11 Impacts to Regional Employment and Income

“Excepting livestock grazing, insufficient information is available to allow quantification of differences in employment and income between the alternatives.”

In other cases, the DEIS must make rely upon coarse assumptions because of the lack of area-specific data. In 4.1.7 (Recreation): “Therefore, for the purposes of this analysis, the non-local visitor day rate was assumed to be 50 percent for all recreation activities. It is likely that this figure is too high for some activities and too low for others.”

#### **Issue-by-Issue Analysis**

In discussing the coverage of socioeconomic impacts in chapter 4 of the DEIS, it is useful to separate out specific issues.

##### *Community Development*

There is no substantive discussion of the efforts that local governments are making to broaden economic opportunities for the residents of the region. As such, there is no way to know if the changes in BLM management might be counter to the community and economic development efforts of local jurisdictions.

##### *Oil and Gas*

The review team does not have particular expertise in the field of oil and gas, and cannot comment on this issue. The Reasonable and Foreseeable Development scenario for the field office has been rapidly in flux during the planning period, and the analysis may not adequately represent the latest information on the likely oil and gas expansion in the study area.

##### *Range Economics*

The impact(s) of changes in the use of public lands by livestock for grazing have been evaluated by numerous authors for over 35 years. The method used in the BLM document did not use any of the methods reflected in this rich body of literature. This would require, as a minimum, summarization and evaluation of changes by allotment so that the impacts by season of use and operator (it is likely that some operators use more than allotment) could be evaluated. These data are available in BLM files but were not used in the analysis. In addition, studies have been conducted concerning the impact of changes in the use of federal lands in this area have been conducted in the past. This work is not reflected in the draft document. Perhaps most importantly however, is the fact that the authors use the “value of production” and total cows (beef and dairy) for the state and apply it to this area. They also use state level data for this area for sheep. This is

compounded by the fact that the “value of production” data does not reflect production of beef cows using public lands. As a result, the method used to evaluate the impact of grazing is not valid.

### *Recreation*

The entire section dismisses impacts as not able to be determined. It would seem that reasonable alternative estimates (ranges) could have been generated for those activities directly affected by the RMP (ORV/ATV, hunting, and so on). An adequate study would have required interviews of samples of the participants in the major recreation activities and their reactions to proposed alternatives. It is hard to accept that there would not be significant impacts on recreation, particularly ORV/ATV use for Alternative C and probably for Alternative B.

ORV/ATV use is not quantitatively addressed in the impact analysis. In the existing conditions chapter, there appears to be some discrepancy in the data presented. For example, the use rates reported in the baseline socioeconomic profile suggest approximately 54,000 visitor days (119,000 visits) in the RFO area in 2001-2002. In Chapter 3 of the EIS (Table 3-22), that number has risen to approximately 121,000 visitors and 54,000 visitor days in 2003-2004. The visitor count for the two trails in the RFO is about 64,500 (Table 3-25). Assuming that these counts are visitors (not visitor days), that means that half of the ATV/ORV use in the RFO occurs on these trails. Is that reasonable?

Data which have been collected on ORV/ATV use in the RFO by Utah State University were not consulted. These data could provide information about origin and length of stay of those visitors/users on specific ORV/ATV trails. Other data may be available.

Expenditures per visitor day or visit have been determined for many of the kinds of visitors listed in Table 12-2 of the Socioeconomic Profile. It would have been possible to make some estimates of economic impacts using the IMPLAN model.

The RMP/DEIS fails to discuss the importance of access to maintaining patterns of recreation and other uses in the area. A 2001 survey of residents in the Central tourism planning district, which includes most of the counties that contain lands managed by the Richfield BLM office, showed that the area has the highest percentage of residents who are trail users, the second-highest frequency of trail use in the state, the second-highest percentage of trail users for whom trail use is a family activity ... and by far the highest percentage of trail users who are ATV riders (51% of trail users, compared to 13% statewide).<sup>4</sup> Changes to BLM management that include changes in ability to use ATVs therefore have the potential to create significant local controversy.

### *Regional Economics*

There is a problem with the way in which reductions in range livestock is used in the impacts model. The IMPLAN model is an input-output model which determines the

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<sup>4</sup> Burr, Steven W., Dale J. Blahna, Douglas K. Reiter and Michael F. Butkus. 2001. A Statewide Telephone Survey of Utah Residents' Attitudes Toward Recreational Trails. Professional Report 2001-06. Institute for Outdoor Recreation and Tourism, Utah State University.



effects of a change in “final demand.” Final demand is composed of sales to households for consumption or exports of goods from the region. The implicit assumption in the approach that was used (cash receipts per AUM) is that the sales of livestock will be reduced by that dollar amount; thus, herds will be reduced proportionately to the reduction in forage (AUMs reduced divided by 16). This is not made clear in the EIS, and may or may not be consistent with the impacts of the reduction. Given the nature of the range livestock industry in the region, it is more likely that feed will be purchased by many (if not most) of the operators to replace the AUMs lost. This amounts to a change in the production function (the proportion of inputs purchased) in the livestock sector and should NOT be treated as final demand. Of course, the driving factor is what changes operators can be projected to make.

### *Social*

In a broad sense, there is no social analysis to speak of. This is surprising, since like most federal agencies the Bureau of Land Management has over the past several decades promulgated various guidelines regarding specific dimensions of the social environment that merit consideration as part of the NEPA process. For example, a “Guide to Social Assessment” developed by contractors for BLM during the 1980s outlined in great detail a “Social Organization Model” that highlights the need to explicitly evaluate impacts across multiple dimensions of local/community resources, multiple dimensions of community social organization, and multiple indicators of well-being. Both the baseline report and the DEIS do little more than talk about demographic changes at a coarse level. There is no substantive discussion of occupational patterns and the linkages that they create to BLM lands. There is no geographic disaggregation of the impacts across the different communities in the area managed by the Field Office, when in fact we can likely surmise that the social and economic trajectory of Torrey or Teasdale differs from that of Annabella or Sigurd. (Even though this is a programmatic document, the proposed special area designations (WSAs and ACECs) do have specific geographical footprints. They are therefore more likely to have impacts on communities proximate to them and could be analyzed in this document.) There is no substantive discussion of local values and traditional uses of the BLM lands, and the ways in which changes in BLM management might conflict with those values and disrupt those uses. There is no discussion of the rapid expansion of recreational and seasonal homes in some portions of the management area, and the potentially distinct ways in which these seasonal and occasional residents may utilize or value lands managed by BLM differently than those who live there on a year-around basis. There is no meaningful discussion of the rapid growth in “permanent” population in some portions of the management area, how that growth is spatially differentiated across the management area, or how recent immigrants may differ from longer-term residents with respect to resource use patterns or resource management values.

The discussion on livestock grazing in the DEIS (4.1.6) states that “Impacts of livestock grazing management decisions on the custom and culture of ranching were addressed qualitatively”. The discussion of culture and custom from this section is excerpted below:

Alternative N: “Ranching on BLM lands also represents an important aspect of local culture.”



Alternative A: "Such changes would not cause widespread economic impacts, but could impact custom and culture of ranching for ranchers operating on affected allotments."

Alternative B: "The conversion of allotments that are in fact currently or usually in use represents a reduction in the overall size of the livestock economy in the region and thus changes the face of the local economy and culture, in which ranching on public lands has been an economically small but culturally prominent feature."

Summary: "Livestock grazing in Alternative N would play a small role in the local economy and an important role in local custom and culture.

Management under Alternative A would not alter this role. Management actions under Alternatives B and C could have measurable economic impacts that would be very small in comparison to the livestock economy and total economy for the five-county economic study area, and could impact the custom and culture of livestock grazing in areas where changes to the livestock grazing management occurred."

Each of these statements regarding custom and culture is true. But they are equally superficial and do not appear to be supported by any analysis or data. There is a large body of social science research that uses qualitative methods. Qualitative should not be synonymous with brief or trivial—it can in fact be quite rigorous. But just like quantitative research it must rely on gathering the appropriate data.

Section 4.1.14, Impacts to Social Customs and Culture, largely reiterates what had been stated in the livestock grazing section, and lacks any in-depth characterization of the various groups and their attachments to the lands in the Richfield field office.

The analysis of impacts of the alternatives on population also lacks foundation. Section 4.1.11 states that "insufficient information is available to allow quantification of differences in employment and income." Nevertheless, 4.1.12 states that "Any population change that could be associated with implementation of alternatives under consideration in the RMP/DEIS would likely be linked to employment changes....Changes in employment in all action alternatives, whether quantified in this RMP/DEIS or not, are not expected to be substantial relative to Alternative N or each other. Therefore population impacts of any of the alternative would negligible (*sic*)."

If population changes flow from employment changes, and the employment changes cannot be quantified, then there is little basis for the conclusion that any population impacts would be negligible.

### **Adequacy of NEPA Document**

Members of the USU review team have considerable combined experience working on NEPA documents as content specialists. In the process of the review, concern was raised over the Alternatives that had been selected for analysis, and their impact on the usefulness of the overall planning effort. Alternatives A and C were constructed to provide comparison benchmarks for Alternative B.

Alternatives A and C were designed to define the limits of the decision space. Alternative B—the preferred alternative—is designed to balance resource uses with resource protection. It represents BLM's attempt to balance its legal mandates with the various interests expressed by the public and cooperators during the planning process. (p. 2-6)

As such, Alternative B may be the only alternative that meets the CEQ requirement of reasonableness, and there is no meaningful debate as to whether Alternatives A or C should be chosen over Alternative B. As such the NEPA mandate to do rigorous and objective analysis across a full range of alternatives may not be fully met by this document, insofar as the alternatives are currently structured.

### **Summary**

In the opinion of the review team, the socioeconomic analysis in the Richfield field office RMP/DEIS falls well short of representing the state-of-the-practice. The almost complete absence of data specific to the analysis region forces the discussion of impacts to be vague and general. The characterization of the impact to livestock grazing does not adequately reflect the ways in which public land grazing is woven into the operational strategies of ranches in the area. The social analysis does not go beyond platitudes about culture and custom. The representation of current use and trends in recreation use is cursory. Finally, the range of alternatives has been structured in such a way as to make a meaningful discussion of options unlikely.

Even though this is a programmatic document, and discussion of site specific impacts is premature, the RMP/DEIS nevertheless needs to move beyond broad generalizations. It needs to portray differential impacts between locations as a result of management alternatives, and between groups as a result of changing use patterns. Moreover, it needs to have sufficient detail to be an adequate foundation upon which to tier the site-specific analyses that occur during the planning period. It does not appear to meet these needs.

### **Review Team**

This review document was written by Dr. Steven Daniels, with sections authored by Dr. Mark Brunson, Dr. Bruce Godfrey, Dr. John Keith, and Dr. Richard Krannich. Additional input into our review efforts were provided by Dr. Marion Bentley, Dr. Chris Fawson, and Dr. Ruby Ward.

## **ATTACHMENT C**



## ATTACHMENT C

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# **The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry Phase I - The Uinta Basin**

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## List of Acronyms & Abbreviations

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<b>BCF</b>	Billion Cubic Feet
<b>BLM</b>	Bureau of Land Management
<b>BLS</b>	Bureau of Labor Statistics
<b>DOGM</b>	Utah Division of Oil, Gas and Mining
<b>E&amp;P</b>	Exploration and Production
<b>IPAMS</b>	Independent Petroleum Association of the Mountain States
<b>MCF</b>	Thousand Cubic Feet
<b>MMCF</b>	Million Cubic Feet
<b>NAICS</b>	North American Industry Classification System
<b>NYMEX</b>	New York Mercantile Exchange
<b>PADD</b>	Petroleum Administration for Defense District
<b>SIC</b>	Standard Industrial Codes
<b>SITLA</b>	School and Institutional Trust Lands Administration
<b>RIMS II</b>	Regional Input-Output Modeling System
<b>UDOT</b>	Utah Department of Transportation
<b>USFS</b>	U.S. Forest Service
<b>WTI</b>	West Texas Intermediate Crude

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# The Structure and Economic Impact of Utah's Oil and Gas Industry

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## 1 Executive Summary

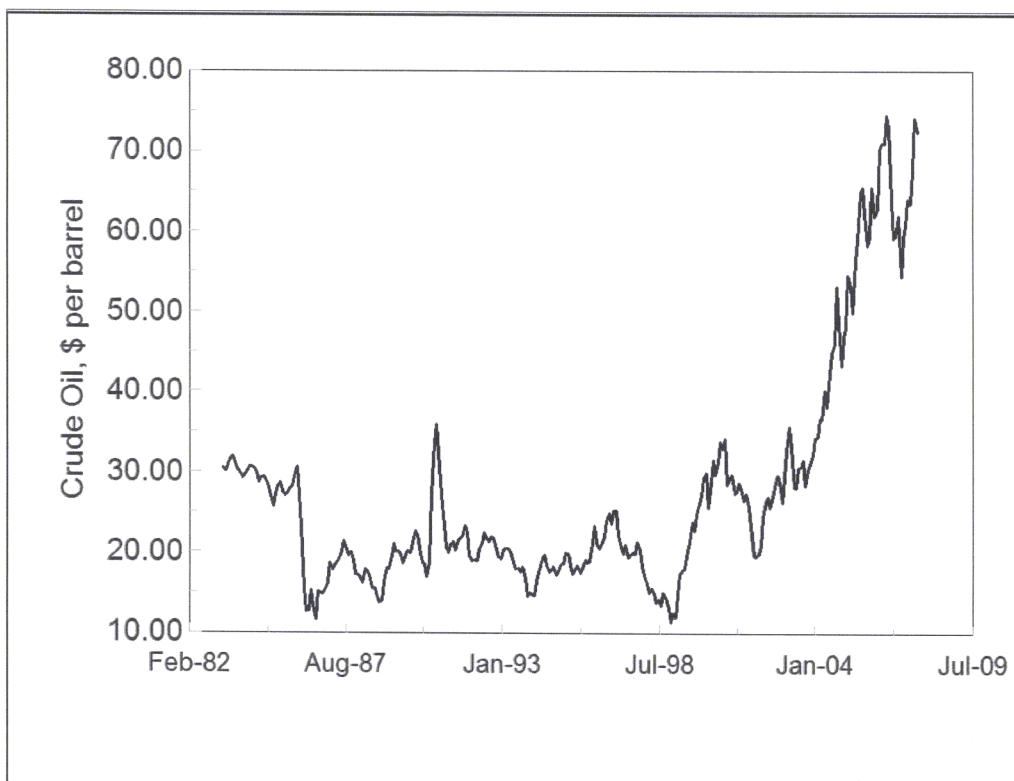
*The Bureau of Economic and Business Research at the University of Utah has completed an economic impact study of the oil and gas exploration and production industry in the Uinta Basin in eastern Utah. The Uinta Basin, comprising Duchesne and Uintah Counties, is the center of the oil and gas industry in Utah. Rapidly rising energy prices in recent years have stimulated greater production of both crude oil and natural gas in the northern Rocky Mountains, and the Uinta Basin is an integral part of the oil and gas industry in the Rocky Mountain area. The 2006 crude oil production in the Uinta Basin of 11.4 million barrels was a 55 percent increase over a recent low of 7.3 million barrels in 2002. Natural gas production in the area has steadily increased over the past 10 years and reached an all-time high of 226 BCF in 2006.*

*The rise in oil and gas activity is causing an economic boom in the Uinta Basin. During 2006, the oil and gas exploration and production industry was directly responsible for 19.9 percent of employment and 34.8 percent of total wages in the Uinta Basin. When including indirect and induced impacts due to company and employee spending, the oil and gas industry accounted for 49.5 percent of employment and 60.1 percent of total wages paid in the Uinta Basin during 2006.*

*The industry also has a sizeable fiscal impact on local governments in the Uinta Basin. Property taxes paid on producing oil and gas wells were \$18.2 million in 2006 and accounted for 38.7 percent of all property taxes paid in the two counties. Federal mineral royalties distributed to the two counties by the Utah Department of Transportation during 2006 amounted to \$30.3 million.*

## 2 Background

The recent rise in the price of gasoline has refocused attention on the energy markets with attention not seen since the collapse of oil prices in the mid 1980s. In contrast to the energy shortage of the 1970s, which was largely driven by constrained supply due to geopolitical issues, the recent runup is a result of increasing demand and decreasing supply from aging fields. Crude oil, and to a lesser extent natural gas, is a worldwide commodity with international supply and demand factors determining prices. Consumption of petroleum products is up worldwide, with developing countries driving the increase. Consumption of petroleum in China was up over 30 percent from 2002 to 2006. This rise in demand for petroleum products has resulted in a dramatic increase in the nominal price of crude oil (Figure 1).



**Figure 1** Crude Oil Price: NYMEX Near Month Contract for Light Sweet Crude

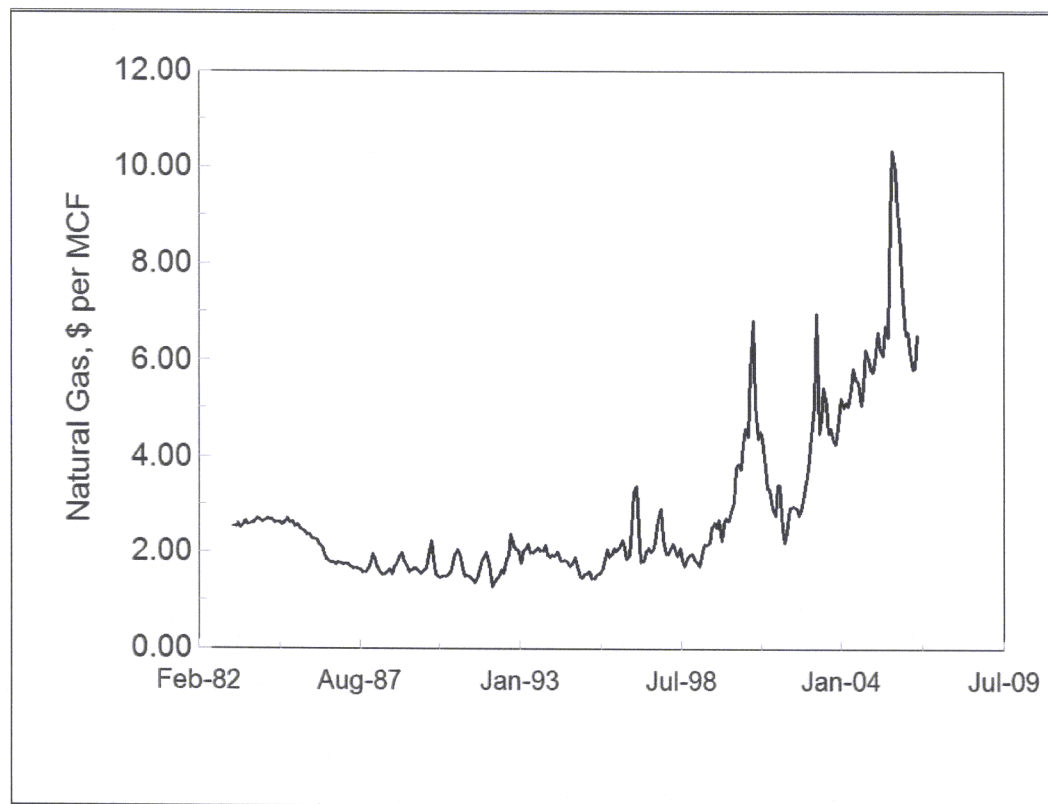
Source: Energy Information Administration

The price of crude oil was relatively flat during the 1990s with prices in the \$20 to \$30 range. Then, from a low of \$11.31 per barrel in December 1998, crude oil increased to over \$70 per barrel in April 2006 and reached \$79.63 in September



2007. Forecasts expect the crude oil price to remain near current levels in the future. In September 2007 the Energy Information Administration forecast the price of West Texas Intermediate Crude<sup>1</sup> would remain over \$71 per barrel through the end of 2008.

At the same time, natural gas prices have increased from historically low values in the late 1990s to a current price of about \$7 per mcf, with increased volatility in recent years (Figure 2). Natural gas is more of a regional commodity than crude oil, with more dependence on local supply and demand factors. The necessity of transporting natural gas by pipeline results in availability of transportation infrastructure having a large influence on natural gas prices. Currently, there is a shortage of pipeline capacity in the Rocky Mountains and wellhead natural gas prices in the area are depressed compared to the rest of the country.



**Figure 2 Average U.S. Wellhead Price of Natural Gas**  
Source: Energy Information Administration

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<sup>1</sup>West Texas Intermediate (WTI) refers to a crude stream produced in Texas and Oklahoma that is the most common reference or "marker" for pricing crude oil and, along with several other domestic and foreign crude streams, is acceptable for settling New York Mercantile Exchange contracts for light, sweet crude oil.



PADD IV had increased to 17.0 percent. Additionally, natural gas production in the Rocky Mountains is increasing approximately five percent annually. The increase in crude oil and natural gas production in the Rocky Mountain states is creating an economic boom in the producing areas.

**Table 1 U.S. Crude Oil and Natural Gas Production by PADD, 2002-2005**

	PADD I	PADD II	PADD III	PADD IV	PADD V	United States Total
Crude Oil, thousand barrels						
2002	7,458	164,635	1,174,305	102,982	947,745	2,097,124
2003	7,170	161,360	1,162,869	105,931	636,123	2,073,453
2004	6,941	159,309	1,103,743	113,069	600,239	1,983,302
2005	8,299	161,587	1,023,499	123,956	572,765	1,890,106
Percent Change, 2002-2005	11.3	(1.9)	(12.8)	20.4	(39.6)	(9.9)
Dry Natural Gas, MMCF						
2002	453,774	2,432,537	12,622,766	2,641,749	776,962	18,927,788
2003	521,824	2,336,271	12,662,381	2,797,202	780,866	19,098,544
2004	520,240	2,428,676	11,960,955	2,935,503	745,517	18,590,891
2005	522,997	2,413,736	11,298,362	3,075,234	763,907	18,074,237
Percent Change, 2002-2005	15.3	(0.8)	(10.5)	16.4	(1.7)	(4.5)
Source: Energy Information Administration						

Despite the common perception of being vertically integrated, the oil and gas industry is highly fragmented, especially at the exploration and production stage. Many companies concentrate exclusively on oil and gas production and have no interest in downstream operations such as pipelines, refineries and product distribution. Additionally, much of the work conducted in the producing fields is contracted to other companies that specialize in different aspects of drilling and maintaining the wells. Few of the operating companies operate their own drill rigs but instead contract with companies that specialize in drilling. Other companies specialize in different operations such as grading well locations, well surveying, running and pulling well casings, cementing wells, and perforating well casings. The operating, drilling and service companies collectively constitute the oil and gas exploration and production industry.

Many other industries benefit from spending by the oil and gas industry. These include consulting geologists and engineering companies, environmental consultants, vendors of oil field equipment and pipeline and trucking companies. Spending by oil industry employees also benefits the local economy. These economic benefits beyond direct employment in the exploration and production industry are known as indirect and induced benefits, and are the source of the "multiplier" effect. This study examines the structure of the Utah oil and gas

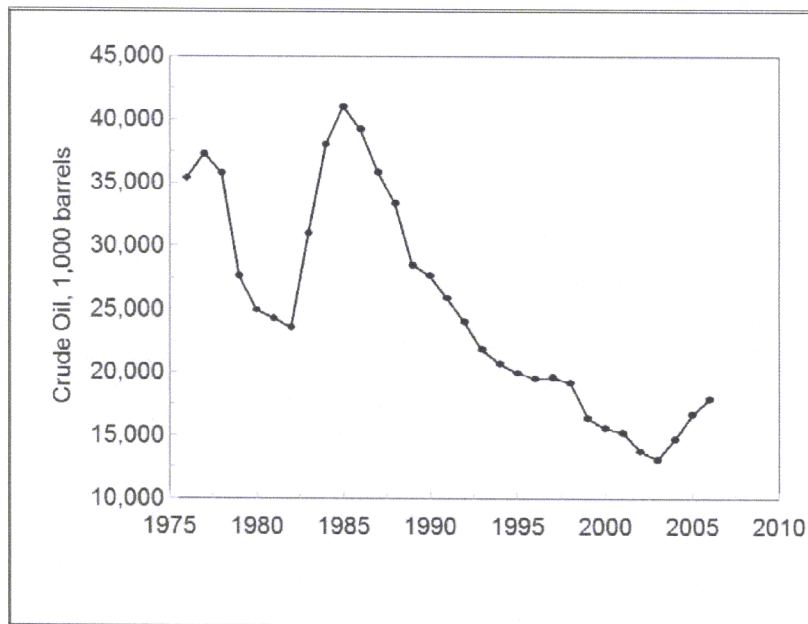


exploration and production industry and the total economic impact on the producing areas.

### 3 Utah's Oil and Gas Industry

The Utah oil and gas industry started in 1891, when a water well being drilled in Farmington Bay near the Great Salt Lake encountered natural gas at a depth of 1,000 feet. Gas from several wells in this area was transported to Salt Lake City through wooden pipelines for several years until shifting sand in the lakebed plugged the wells. The first oil was found in the early 1900s near Rozel Point at the north end of the Great Salt Lake, near Mexican Hat in southeastern Utah and near the town of Virgin in southwestern Utah. The first large-scale commercial oil well was drilled near Vernal in 1948. Since the early 1960s, Utah has consistently ranked in the top 15 oil-producing states and in recent years has experienced a dramatic rise in natural gas production. During 2005, Utah ranked 15<sup>th</sup> in crude oil production out of 31 states and two Federal Offshore Areas and 11<sup>th</sup> in dry natural gas production out of 33 states and the Federal Offshore Area in the Gulf of Mexico.

Utah is contributing to the recent growth in crude oil and natural gas production taking place in the Rocky Mountain states (PADD IV). The state's 2006 crude oil production of 17.9 million barrels was a 37 percent increase over the recent low of 13.1 million barrels produced in 2003 (Figure 4). Although a substantial increase from the recent past, 2006's output was still only 44 percent of the all-time high of 41.1 million barrels produced in 1985.



**Figure 4 Utah Crude Oil Production**  
Source: Utah Division of Oil, Gas and Mining

well in 1962. Natural gas production per gas well steadily declined to 67 MMCF per well in 2000 before rising to 84 MMCF per well in 2006. Similarly, crude oil production per oil well peaked at 57,330 barrels per well in 1959 and dropped to 6,727 barrels per well in 2003. Crude oil production per well in Utah was 7,308 barrels during 2006.

During 2006, 129 different operating companies reported crude oil and natural gas production to the Utah Division of Oil, Gas and Mining. Production occurred in 11 of Utah's 29 counties. Duchesne County had the highest oil production with 6,401,299 barrels while Uintah County led natural gas production with gross withdrawals of 203,522,421 MCF.

Six different areas in Utah currently have significant production of oil or natural gas. These areas are defined by geology. Additionally, these areas are somewhat isolated from one another economically, especially in terms of the oil and gas exploration and production (E&P) industry. The major oil and gas producing area in Utah is the Uinta Basin in the northeastern part of the state. Vernal is a center of the oil and gas industry in the Uinta Basin with many of the producing, drilling and service companies maintaining offices in the area. Other producing areas in Utah include coalbed methane plays in Carbon and Emery Counties, the Paradox Basin in San Juan County, the Uncompahgre Uplift in Grand County, the Thrust Belt in Summit County and the recently discovered Hingeline in the central part of the state.

The Paradox Basin, Uncompahgre Uplift, and Thrust Belts all extend over state lines to adjacent states. Many of the workers involved in operating wells in these areas are actually employed in other states. Coalbed methane operations in Carbon and Emery Counties and the Hingeline are fairly recent discoveries and an oil service industry has not developed in these areas.

Defining the oil and gas E&P industry is a key element for a study of this type. Economists use the North American Industry Classification System (NAICS) developed by the Office of Management and Budget for classifying industries for reporting employment and earnings. The NAICS codes are divided into 20 major industrial sectors. These major sectors are then further subdivided as necessary.

The NAICS codes have three industrial classifications that directly apply to the oil and gas E&P industry. These are NAICS 211 - Oil and Gas Extraction, NAICS 213111 - Drilling Oil and Gas Wells, and NAICS 213112 - Support Activities for Oil and Gas Operations. For purposes of this study, these three industries are collectively considered the oil and gas E&P industry. Additional information on the NAICS codes for these three industries is available in Section 6.

The following section summarize oil and gas production in Duchesne and Uintah Counties. Also included are economic data for Duchesne and Uintah Counties to place the oil and gas E&P industry in context.

### **3.1 Uinta Basin**

The Uinta Basin in northeastern Utah is the largest oil and gas producing area in the state and a significant producer in the Rocky Mountains. Natural gas was first discovered in economic quantities in the Uinta Basin in 1925 at the Ashley Valley field. In 1949, oil was discovered in the Roosevelt field. Natural gas and crude oil have been produced in the Uinta Basin since then, although production and the accompanying economic impact have varied with prices. The Uinta Basin is currently experiencing a significant economic boom due to increased oil and gas activity. This boom should continue as long as energy prices remain at current or higher levels.

Although the geologic area defined as the Uinta Basin extends into Colorado and includes portions of several other Utah counties (Carbon, Emery, Grand, Wasatch, and Utah), this study focuses on Duchesne and Uintah Counties, Utah. Economic data is released at the county level and almost all of the economic activity associated with E&P activities in the Uinta Basin occurs in these two counties. For this study, the term Uinta Basin refers to Duchesne and Uintah Counties, collectively unless otherwise indicated.

The two counties contain just under five million acres (Table 2), with 54 percent of the land controlled by the federal government. After including land controlled by the state government and Indian lands, only 21.8 percent of the Uinta Basin is privately owned. With such a large portion of the land controlled by the federal government, the oil and gas E&P industry is highly sensitive to changes in federal land management policy. The largest amount of federal land in the Uinta Basin is controlled by the Bureau of Land Management, which is responsible for 32.7 percent of the land in the two counties. An additional 14.6 percent is administered by the U.S. Forest Service. Lesser amounts are controlled by the U.S. Fish and Wildlife Service and the National Park Service.

The majority of the state land in the basin is controlled by the Utah School and Institutional Trust Lands Administration (SITLA). SITLA administers six percent of the land in the two counties. Lesser amounts are controlled by the Utah Division of Wildlife Resources and the Utah Division of State Parks and Recreation. Indian lands make up 16 percent of the Uinta Basin.



**Table 2 Land Ownership in the Uinta Basin**

	Duchesne County, acres	Uintah County, acres	Uinta Basin Total, acres	Percent of Total
Bureau of Land Management	206,552	1,411,944	1,618,496	32.7
US Forest Service	453,680	269,380	723,060	14.6
National Wildlife Refuge	0	8,975	8,975	0.2
USFS and BLM Wilderness	263,882	0	263,882	5.3
National Park Service	0	50,682	50,682	1.0
Total Federal	924,115	1,740,981	2,665,096	53.9
State Parks	3,723	956	4,679	0.1
State Wildlife Lands	76,206	9,707	85,913	1.7
State Trust Lands	54,357	240,602	294,959	6.0
Total State Lands	134,287	251,264	385,551	7.8
Indian Lands	395,848	423,353	819,201	16.6
Private	614,070	461,646	1,075,716	21.8
Total	2,068,318	2,877,244	4,945,562	100.0
Source: Utah Governor's Office of Planning and Budget				

Production of both crude oil and natural gas have increased in recent years in the Uinta Basin (Tables 3-4). From a low of 7.3 million barrels in 2002, crude oil production in the two counties increased to 11.4 million barrels in 2006. Production is rising faster in the Uinta Basin than in Utah as a whole. While crude oil production increased 55.5 percent in the basin from 2002 to 2006, production in the state as a whole increased by 30.2 percent. In 1997, 48.5 percent of the crude oil produced in Utah came out of the basin. By 2006, the amount of the state's crude oil production originating in the Uinta Basin had increased to 63.4 percent.

**Table 3 Uinta Basin Crude Oil Production, 1997-2006**

	Crude Oil, barrels			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	6,358,598	3,147,423	9,506,021	19,592,548
1998	6,268,634	2,940,615	9,209,249	19,223,542
1999	4,697,532	2,637,875	7,335,407	16,376,521
2000	4,772,096	2,788,908	7,561,004	15,609,030
2001	4,980,167	3,195,205	8,175,372	15,273,926
2002	4,291,457	3,016,376	7,307,833	13,770,860
2003	4,341,306	3,069,047	7,410,353	13,098,424
2004	5,838,429	3,776,762	9,615,191	14,799,208
2005	6,670,272	4,371,478	11,041,750	16,675,302
2006	6,401,299	4,959,425	11,360,724	17,926,580
Percent of State Total, 2006	35.7	27.7	63.4	100.00
Source: Utah Division of Oil, Gas and Mining				

The rise in natural gas production has been even more dramatic than that of crude oil. Over the past 10 years, gas production from the basin has steadily grown from 81 BCF in 1997 to 226 BCF in 2006, a 178 percent increase (Table 4). Uintah County has been the site of most of this growth. Production in Uintah County increased by 236 percent from 1997 to 2006, and the county was responsible for 57.1 percent of the natural gas produced in Utah during 2006.

**Table 4      Uinta Basin Natural Gas Production (Gross Withdrawals), 1997-2006**

	Natural Gas, MCF			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	20,631,221	60,599,426	81,230,647	272,553,774
1998	19,204,848	70,621,273	89,826,121	297,503,246
1999	15,352,521	72,154,481	87,507,002	277,494,312
2000	13,934,444	83,100,193	97,034,637	281,170,016
2001	13,933,698	93,909,207	107,842,905	300,975,578
2002	12,476,159	104,385,705	116,861,864	293,030,004
2003	11,954,655	111,241,438	123,196,093	287,141,238
2004	14,641,315	132,454,516	147,095,831	293,735,994
2005	20,089,535	163,830,925	183,920,460	313,465,305
2006	22,525,615	203,522,421	226,048,036	356,361,028
Percent of State Total, 2006	6.32	57.11	63.43	100.0
Source: Utah Division of Oil, Gas and Mining				

The rising production is reflected in increased drilling activity in Duchesne and Uintah Counties (Table 5). From a low of 150 oil and gas wells spudded in the basin during 1999, the number increased to 933 wells spudded in 2006. As with production, drilling activity in Utah is focused in the Uinta Basin. During 2006, of a total of 1,056 oil and gas wells spudded in Utah, 88.3 percent were drilled in the Uinta Basin.

**Table 5 Wells Spudded in the Uinta Basin, 1997-2006**

	Wells Spudded			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
1997	160	154	314	430
1998	123	186	309	430
1999	10	140	150	283
2000	63	289	352	540
2001	74	386	460	627
2002	44	226	270	391
2003	89	333	422	480
2004	166	441	607	659
2005	183	569	752	889
2006	279	654	933	1,057
Percent of State Total, 2006	26.4	61.9	88.3	100.00
Source: Utah Division of Oil, Gas and Mining				

While production of both crude oil and natural gas is increasing in the Uinta Basin, this increase must be placed in the context of the total economy for the two counties.

The Uinta Basin had an estimated 2006 population of 43,332, up 6.1 percent from 2002 (Table 6). Major cities included Vernal, with an estimated 2006 population of 8,163, Roosevelt (4,681), Duchesne (1,506) and Naples (1,502). The 2000 Decennial Census determined that 39.3 percent of the population lives in the two urban areas of Vernal and Roosevelt. The remainder of the two counties is not densely enough populated to be considered urban.<sup>2</sup> Although they contained almost 40 percent of the population of the two counties, the two urban areas account for only 0.18 percent of the land area in the Uinta Basin.

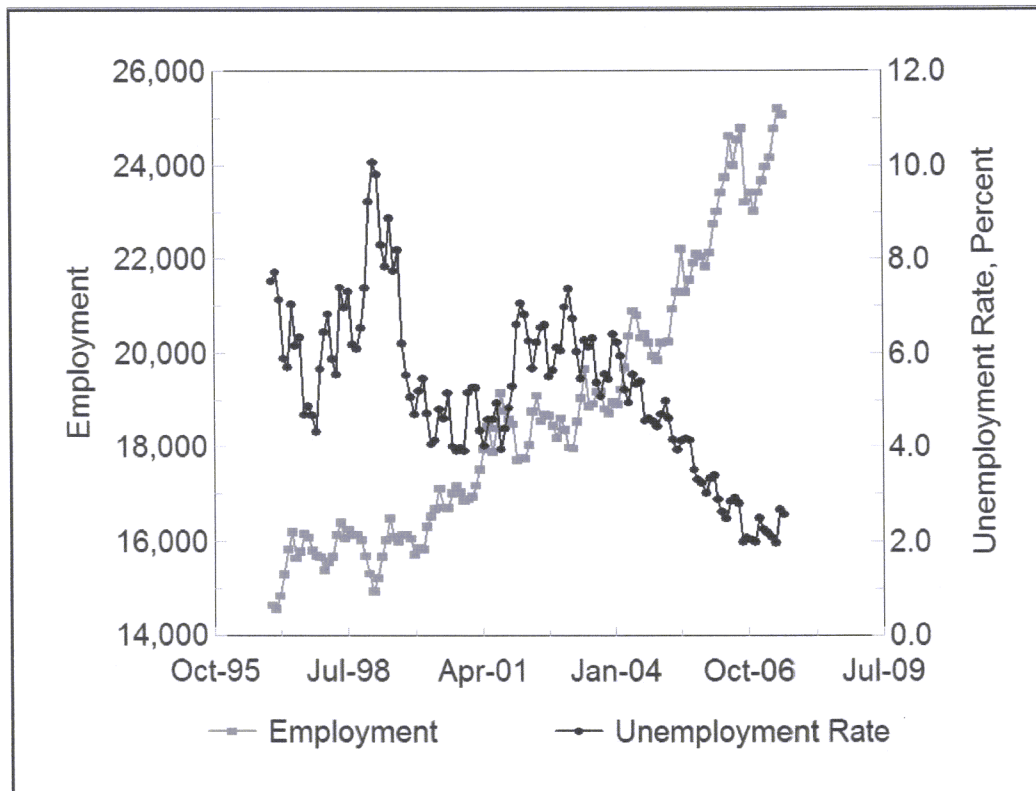
**Table 6 Uinta Basin Population, 2002-2006**

	Population			
	Duchesne County	Uintah County	Uinta Basin Total	State Total
2002	14,856	25,984	40,840	2,358,330
2003	14,698	26,019	40,717	2,413,618
2004	14,933	26,224	41,157	2,469,230
2005	15,237	26,883	42,120	2,547,389
2006	15,585	27,747	43,332	2,615,129
Source: Utah Population Estimates Committee				

<sup>2</sup>The Bureau of the Census defines urban areas as census blocks that have a population density of at least 1,000 persons per square mile and surrounding census blocks with a population density of 500 persons per square mile. Adjacent census blocks with a lower population density are also included if they meet additional criteria established by the Bureau of the Census.



The Uinta Basin is benefitting economically from the oil and gas boom; its unemployment rate has consistently been lower than the state average since August 2005. As energy prices have increased, employment in the Uinta Basin has risen, from approximately 14,500 persons in 1997 to over 25,000 persons in mid-2007 (Figure 6). The unemployment rate in the area has declined since the middle of 2002 after reaching a high of 10.1 percent in February 1999.



**Figure 6 Employment and the Unemployment Rate in the Uinta Basin**  
Source: BLS, Local Area Unemployment Statistics

The industrial structure of the basin is significantly different from that of the state of Utah (Table 7). Mining, which includes oil and gas production, is responsible for over 20 percent of the employment in the Uinta Basin, compared with 0.9 percent of employment in Utah. The Uinta Basin is nearly 25 times more dependent on the mining industry for employment than is Utah as a whole, as indicated by a location quotient of 24.9<sup>3</sup>. While the majority of mining employment in the basin is due to oil and gas production, there are other mining operations present. Significant mining operations in the Uinta Basin other than oil and gas extraction are the SF

<sup>3</sup>Location Quotients are the ratio of an industry's share of employment in a study area, in this case the Uinta Basin, to its share in a reference area, e.g., the state of Utah.

Phosphates Ltd. mine north of Vernal and three gilsonite operations by American Gilsonite, Lexco, Inc., and Ziegler Mineral and Chemical. These other mining operations in the Uinta Basin employ an estimated 270 persons.

Other differences in industrial structure include a much lower reliance on Manufacturing and Educational Services for employment and a higher percentage of employment in Utilities, Transportation, Agriculture, Forestry, Fishing and Hunting, Real Estate and Government. The fairly high location quotient for Utilities, 2.60, is largely due to the presence of the Deseret Power Bonanza Power Plant south of Vernal. Transportation and Warehousing also has a high location quotient of 1.71. Much of the crude oil produced in the Uinta Basin contains a wax that solidifies below 105 F. This results in difficulties in shipping the crude oil to refineries via pipeline so the oil must be sent by tank truck. Government is commonly a significant employer in areas with large amounts of public land due to the presence of federal land-managing agencies.

Industries with low location quotients in the Uinta Basin include Manufacturing and Educational Services. Manufacturing has a location quotient of 0.18, indicating that the basin is only 18 percent as dependent on Manufacturing for employment as is the state of Utah. Similarly, the location quotient for Educational Services is 0.13, suggesting that there are few private educational facilities in the Uinta Basin.

Several major industries have employment data that is nondisclosable for Duchesne or Uintah Counties. This is done to protect individual company data. These industries are Management of Companies and Enterprises (NAICS 55), Administrative and Support Services (NAICS 56), Arts, Entertainment and Recreation (NAICS 71), and Accommodation and Food Services (NAICS 72). Since employment numbers are not available for these industries, location quotients can not be calculated. Data for these industries are included in the total employment figures.

**Table 7      Employment by Industry in the Uinta Basin, 2006**

	Duchesne County	Uintah County	Uinta Basin	Distribution, Percent	Location Quotient
<b>Private Employment</b>					
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	37	77	114	0.6	1.51
Mining (NAICS 21)	981	3,248	4,229	21.3	24.92
Utilities (NAICS 22)	44	134	178	0.9	2.60
Construction (NAICS 23)	645	834	1,479	7.5	0.92
Manufacturing (NAICS 31-32)	151	224	375	1.9	0.18
Wholesale Trade (NAICS 42)	129	532	661	3.3	0.87
Retail Trade (NAICS 44-45)	752	1,471	2,223	11.2	0.93
Transportation and Warehousing (NAICS 48-49)	522	718	1,240	6.2	1.71
Information (NAICS 51)	172	143	315	1.6	0.59
Finance and Insurance (NAICS 52)	119	180	299	1.5	0.33
Real Estate (NAICS 53)	51	352	403	2.0	1.35
Professional, Scientific and Technical Services (NAICS 54)	79	339	418	2.1	0.40
Management of Companies and Enterprises (NAICS 55)	ND	ND	ND	ND	ND
Administrative and Support (NAICS 56)	ND	ND	ND	ND	ND
Educational Services (NAICS 61)	20	22	42	0.2	0.13
Health Care (NAICS 62)	446	831	1,277	6.4	0.74
Arts, Entertainment and Recreation (NAICS 71)	ND	59	ND	ND	ND
Accommodation and Food Services (NAICS 72)	ND	883	ND	ND	ND
Other Services (NAICS 81)	157	344	501	2.5	1.01
<b>Government Employment</b>	1,716	2,577	4,293	21.6	1.32
<b>Total Employment</b>	6,560	13,292	19,852	100.0	1.00
ND: Not disclosed to protect individual company information. Data are included in the totals. Source: BLS, Quarterly Census of Employment and Wages					



Direct employment in the oil and gas E&P industry has been rising in recent years as increased production was stimulated by higher energy prices (Table 8). The employment for oil and gas extraction is not disclosed for Duchesne County to protect individual company data. However, employment for this industry is estimated at 452 individuals for 2006<sup>4</sup>. Estimated employment by the oil and gas E&P industry is therefore estimated at 974 persons in Duchesne County and was 2,985 persons in Uintah County during 2006. The direct employment of 3,959 persons in the oil and gas E&P industry accounts for 19.9 percent of the total 2006 employment of 19,852 persons in the Uinta Basin.

**Table 8 Oil and Gas E&P Employment in the Uinta Basin, 2001-2006**

	<b>NAICS 211 Oil and Gas Extraction</b>	<b>NAICS 213111 Drilling Oil and Gas Wells</b>	<b>NAICS 213112 Support Activities for Oil and Gas Operations</b>	<b>Total Oil and Gas Direct Employment</b>
<b>Duchesne County</b>				
2001	ND	138	223	GT 361
2002	ND	140	203	GT 343
2003	ND	57	205	GT 262
2004	ND	58	237	GT 295
2005	ND	68	307	GT 375
2006	ND	102	420	GT 522
<b>Uintah County</b>				
2001	68	368	940	1,376
2002	76	278	973	1,327
2003	181	441	943	1,564
2004	186	508	1,136	1,830
2005	206	587	1,461	2,254
2006	278	913	1,794	2,985
GT: Greater Than				
ND: Not disclosable to protect individual company data.				
Source: BLS, Quarterly Census of Employment and Wages				

Total Uintah County employment in the three NAICS industries involved in oil and gas production increased by 117 percent from 2001 to 2006. Total employment for Duchesne County over time is difficult to discern due to employment for Oil and Gas Extraction (NAICS 211) not being nondisclosed. Duchesne County employment in

<sup>4</sup>For 2006, the BLS lists total Mining (NAICS 21) employment as 981. Of the three subcategories at the three-digit NAICS level, employment is nondisclosable for Oil and Gas Extraction (NAICS 211) and Mining, Other than Oil and Gas (NAICS 212). Employment for Support Activities for Mining (NAICS 213) is reported as 522. The Utah Department of Workforce Services reports only one firm, with an employment between 5 and 9 persons, in NAICS 212 operating in Duchesne County. By subtraction, employment for Oil and Gas Extraction is between 450 and 454 with an expected value of 452.

The lowest paying private industries in the two counties are Agriculture, Forestry, Fishing and Hunting, Educational Services, Arts, Entertainment and Recreation and Accommodation and Food Services. Each of these industries pays an average wage of less than \$20,000 annually in the Uintah Basin.

**Table 9 Average Annual Wages by Industry in the Uinta Basin, 2006**

	Duchesne County	Uintah County
<b>Private Employment</b>		
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	\$18,232	\$17,530
Mining (NAICS 21)	63,057	63,963
Utilities (NAICS 22)	31,471	82,676
Construction (NAICS 23)	34,223	32,423
Manufacturing (NAICS 31-32)	33,950	25,420
Wholesale Trade (NAICS 42)	43,791	45,875
Retail Trade (NAICS 44-45)	19,062	21,257
Transportation and Warehousing (NAICS 48-49)	51,961	55,044
Information (NAICS 51)	33,893	25,369
Finance and Insurance (NAICS 52)	26,983	32,425
Real Estate (NAICS 53)	19,385	56,548
Professional, Scientific and Technical Services (NAICS 54)	37,440	36,420
Management of Companies and Enterprises (NAICS 55)	ND	ND
Administrative and Support (NAICS 56)	ND	ND
Educational Services (NAICS 61)	3,604	17,603
Health Care (NAICS 62)	31,236	23,552
Arts, Entertainment and Recreation (NAICS 71)	ND	7,411
Accommodation and Food Services (NAICS 72)	ND	10,044
Other Services (NAICS 81)	26,803	27,602
<b>Government Employment</b>	28,618	31,983
<b>All Employment</b>	34,538	39,056
ND: Not disclosed to protect individual company information.		
Source: BLS, Quarterly Census of Employment and Wages		

Wages in the E&P industry in the Uinta Basin are higher than the average wage and in line with mining wages in general. Of the three NAICS industries related to E&P, the highest wages are paid by the operating companies (Table 10). The average wage paid by companies in the Oil and Gas Extraction industry (NAICS 211) was \$84,795 in Uintah County during 2006. The data for Duchesne County is not disclosed, but the average wage should be similar to that paid in Uintah County. The oil service companies (NAICS 213112) pay the lowest wages of the three NAICS industries related to E&P activities. However, they are still noticeably above the average wage for the area.

Wages for the three NAICS industries involved in oil and gas E&P have been rising in recent years, reflecting increased demand for labor in the area related to rising production. Since a low in 2002 the average wage paid by the oil service companies

increased by 44 percent in Uintah County and by 25 percent in Duchesne County. Similarly, the average wage paid by drilling companies rose by 54 percent in Uintah County and by 9 percent in Duchesne County. Wages paid by the operating companies are also increasing, with a 59 percent rise from 2002 to 2006 in Uintah County.

**Table 10 Oil and Gas E&P Average Annual Wages in the Uinta Basin, 2001-2006**

	<b>NAICS 211 Oil and Gas Extraction</b>	<b>NAICS 213111 Drilling Oil and Gas Wells</b>	<b>NAICS 213112 Support Activities for Oil and Gas Operations</b>
<b>Duchesne County</b>			
2001	ND	\$61,423	\$44,412
2002	ND	54,949	42,709
2003	ND	49,464	43,903
2004	ND	51,245	43,270
2005	ND	62,037	48,194
2006	ND	59,726	53,585
<b>Uintah County</b>			
2001	\$98,933	\$46,287	\$44,948
2002	53,149	45,776	40,318
2003	61,838	48,404	44,230
2004	66,627	55,208	47,845
2005	75,598	65,041	49,770
2006	84,795	70,704	58,129
ND: Not disclosed to protect individual company data.			
Source: BLS. Quarterly Census of Employment and Wages			

## 4 Economic Impacts

While rising energy prices are translating into rising employment and wages in the producing areas, not all of the economic gains are occurring in the oil and gas industry. The total increase in local economic conditions due to oil and gas activity is greater than the direct gain in the industry. This is the “multiplier effect” often referred to in economics and is a result of local spending by the industry for goods and services and spending of wages by the industry’s employees. These additional economic benefits are known as the indirect and induced benefits.

In this study, economic impact is defined as the effect on employment and wages in the subject areas. Additional information on economic impact is available in Section 6 and in several listed references.

### 4.1 Uinta Basin

The Uinta Basin is the center of the oil and gas E&P industry in Utah. As such, the oil and gas industry is a major factor in the area’s economy and is responsible for



a major portion of employment in the two counties. Direct employment in the E&P industry accounted for nearly 20 percent of total employment and 35 percent of total wages paid during 2006 (Table 11)<sup>5</sup>. Uintah County is more dependent upon the oil and gas industry for employment than is Duchesne County. Many of the company offices are located in Vernal but they do business in both counties.

**Table 11 Direct Employment and Wages in the E&P Industry in the Uinta Basin, 2006**

	Duchesne County		Uintah County		Uinta Basin Total	
	Employment	Wages, 1,000	Employment	Wages, 1,000	Employment	Wages, 1,000
Total	6,560	\$226,561	13,292	\$519,112	19,852	\$745,683
E&P Industry, Direct	974	66,904	2,985	192,338	3,959	259,242
E&P Industry, percent of total	14.8	29.5	22.5	37.0	19.9	34.8
Source: BLS, Quarterly Census of Employment and Wages; author's estimates.						

In addition to the direct employment, additional jobs and wages due to spending by the industry and employees results in significant economic benefits to the Uinta Basin. Other employment due to spending by the E&P industry is not limited to the mining industry but is distributed throughout different industries. Total employment in the Uinta Basin due to the E&P industry, including direct, indirect, and induced, was estimated at 49.5 percent of total jobs in the area in 2006 (Table 12). When examining employment by industry, the oil and gas industry is shown to have significant effects on in several other industries.

The E&P industry is responsible for large portions of employment in Retail Trade, Transportation and Warehousing, Real Estate and Other Services. The RIMS II Input-Output model used to determine economic impacts calculates employment by industry irrespective of type of ownership, i.e., private or government employment. However, the BLS figures do segregate private and government employment. The employment due to the oil and gas industry given in Table 12 includes some government employment in the various industries, not just the private employment. Two of the listed industries have significant government employment in addition to the private employment shown Table 12. They are Educational Services and Health Care and Social Assistance. The RIMS II model classifies employees in public education under Educational Services, so the total number of persons employed in this industry is much greater than the 42 persons in private employment listed in Table 12. Other industries with significant levels of public employment are Health Care and Social Assistance and, to a lesser extent, Utilities and Arts, Entertainment and Recreation.

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<sup>5</sup>Total wages for Oil and Gas Extraction (NAICS 211) were not released by the BLS for Duchesne County. Total wages were estimated by multiplying the estimated employment of 452 (see Footnote 4) by the average wage for the industry in Uintah County of \$84,795.

Several industries have no government employment in the Uinta Basin. These industries are Agriculture, Forestry, Fishing and Hunting, Mining, Manufacturing, Wholesale Trade, Professional, Scientific and Technical Services, Management of Companies and Enterprises, and Accommodation and Food Services. Although there are government employees located in the Uinta Basin to regulate the oil and gas industry, these are not considered part of the Mining industry. The state Division of Oil, Gas and Mining has four employees in the area and there are also several dozen BLM employees dedicated to regulating the industry. For purposes of employment classification, these employees are considered to be employed in NAICS-92 Public Administration, which is included in the government employment in Table 12.

**Table 12 Employment Due to Oil and Gas E&P in the Uinta Basin, 2006**

	Uinta Basin Total Employment	Total Employment Due to Oil and Gas E&P	Oil and Gas E&P Employment, percent of total
<b>Private Employment</b>			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	114	14	12.2
Mining (NAICS 21)	4,229	4,020	95.1
Utilities (NAICS 22)	178	33	18.6
Construction (NAICS 23)	1,479	598	40.4
Manufacturing (NAICS 31-32)	375	185	49.3
Wholesale Trade (NAICS 42)	661	145	22.0
Retail Trade (NAICS 44-45)	2,223	1,558	70.1
Transportation and Warehousing (NAICS 48-49)	1,240	875	70.6
Information (NAICS 51)	315	59	18.8
Finance and Insurance (NAICS 52)	299	142	47.4
Real Estate (NAICS 53)	403	307	76.3
Professional, Scientific and Technical Services (NAICS 54)	418	229	54.8
Management of Companies and Enterprises (NAICS 55)	ND	16	NA
Administrative and Support (NAICS 56)	ND	80	NA
Educational Services (NAICS 61)	42	58	138.7
Health Care (NAICS 62)	1,277	626	49.0
Arts, Entertainment and Recreation (NAICS 71)	ND	49	NA
Accommodation and Food Services (NAICS 72)	ND	427	NA
Other Services (NAICS 81)	501	378	75.5
Households	NA	36	NA
<b>Government Employment</b>	4,293	NA	NA
<b>All Employment</b>	19,582	9,835	49.5
<p>Note: There is significant government employment in both Educational Services and Health Care and Social Assistance in the Uinta Basin. The employment calculated using the RIMS II model, which includes government employment, can exceed the private employment in these industries.</p> <p>ND: Nondisclosable. Data are included in the totals. NA: Not Applicable.</p> <p>Source: BLS, Quarterly Census of Employment and Wages; author's calculations.</p>			

Oil and gas E&P accounts for over 60 percent of all wages paid in the Uinta Basin (Table 13). The industry is responsible for a higher percentage of wages than employment due to oil and gas E&P paying above average wages. In addition to

Mining, industries with a significant portion of wages due to oil and gas extraction include Manufacturing, Retail Trade, Finance and Insurance, Professional, Scientific and Technical Services, and Other Services. As with employment, the amount of wages reported in Educational Services is greater than the wages paid by private employers in that industry. This is due to public schools accounting for a major portion of the employment in the Educational Services. Public schools are not private employment, but government employment, and so their wages are categorized separately in the BLS figures.

**Table 13 Wages Due to Oil and Gas E&P in the Uinta Basin, 2006**

	Uinta Basin Total Wages, \$1,000	Total Wages Due to Oil and Gas E&P, \$1,000	Oil and Gas E&P Wages, percent of total
<b>Private Employment</b>			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	2,027	243	12.0
Mining (NAICS 21)	269,605	263,111	97.6
Utilities (NAICS 22)	12,473	2,959	23.7
Construction (NAICS 23)	49,123	24,547	50.0
Manufacturing (NAICS 31-32)	10,808	7,897	73.1
Wholesale Trade (NAICS 42)	30,033	6,886	22.9
Retail Trade (NAICS 44-45)	45,603	35,053	76.9
Transportation and Warehousing (NAICS 48-49)	66,650	34,377	51.6
Information (NAICS 51)	9,457	3,257	34.4
Finance and Insurance (NAICS 52)	9,058	5,683	62.7
Real Estate (NAICS 53)	20,894	11,872	56.8
Professional, Scientific and Technical Services (NAICS 54)	15,049	11,553	76.8
Management of Companies and Enterprises (NAICS 55)	ND	852	NA
Administrative and Support (NAICS 56)	ND	1,836	NA
Educational Services (NAICS 61)	466	1,195	256.5
Health Care (NAICS 62)	33,508	19,975	59.6
Arts, Entertainment and Recreation (NAICS 71)	ND	892	NA
Accommodation and Food Services (NAICS 72)	ND	5,830	NA
Other Services (NAICS 81)	13,690	9,651	70.5
Households	NA	578	NA
<b>Government Employment</b>	131,529	NA	NA
<b>All Employment</b>	745,683	448,246	60.1
<p>Note: There is significant government employment in both Educational Services and Health Care and Social Assistance in the Uinta Basin. The wages calculated using the RIMS II model, which includes government wages, can exceed the private wages in these industries.</p> <p>ND: Not disclosed, NA: Not Applicable.</p> <p>Source: BLS, Quarterly Census of Employment and Wages; author's calculations.</p>			

## 5 Fiscal Impacts

The oil and gas industry also has fiscal impacts on the local areas. Fiscal impacts refer to impacts on government finances and tax collections. The oil and gas industry is subject to the tax laws common to all business. There are also impacts unique to the industry. Production on federal land is subject to a royalty payment



under the Mineral Lands Leasing Act of 1920. This royalty is paid to the Minerals Management Service, an agency within the U.S. Department of Interior. A portion of the federal mineral royalties is returned to the state of origin. Generally, one-half of federal mineral royalties are returned to the states of origin. Royalties from production on Indian lands are returned to the appropriate tribe, not to the state government. Since a large portion of the crude oil production in Utah occurs on Indian lands, especially in Duchesne and San Juan Counties, the amount of crude oil royalty returned to the state government is significantly less than one-half of the amount paid to the Minerals Management Service. The states have full discretion as to the distribution of federal mineral royalties as long as priority is given to areas with economic and/or social impacts from leasing activities. The Minerals Management Service does not release federal mineral royalty data at the county level, but statewide data are available.

Federal mineral royalties due to oil and gas production in Utah have dramatically increased in recent years, to \$299 million in 2006, a 228 percent rise from \$91 million in 2001 (Table 14). Oil and gas production accounted for 91.3 percent of the royalties paid for mineral production on federal land in Utah during 2006. There was also an additional \$103 million paid in bonus and rents on federal mineral leases. These are fees associated with awarding federal mineral leases and maintaining the leases until production is initiated. Table 14 includes royalties due to oil and gas production, but does not include bonus or rent payments for federal oil and gas leases. Of the nearly \$300 million paid in federal mineral royalties by the oil and gas industry in Utah, \$109 million was returned to the state government.

**Table 14 Federal Mineral Royalty Payments and Disbursements for Utah, 2001-2006**

	Oil		Natural Gas		Total	
	Royalties	Disbursements	Royalties	Disbursements	Royalties	Disbursements
2001	\$32,799,794	\$4,392,667	\$58,553,527	\$26,210,621	\$91,353,321	\$30,603,288
2002	26,028,911	3,493,794	37,653,050	11,921,373	63,681,961	15,415,167
2003	37,462,357	5,575,810	55,369,036	26,040,706	92,831,293	31,616,515
2004	45,743,590	7,235,629	87,075,857	38,228,494	132,819,447	45,464,122
2005	66,900,212	10,405,687	118,132,687	53,647,636	185,032,900	64,053,323
2006	106,457,298	21,866,066	193,416,183	87,551,457	299,873,481	109,417,522
Note: Years are federal fiscal years. Natural gas includes natural gas liquids from gas processing plants.						
Source: Minerals Management Service						

In Utah, federal mineral royalties are distributed to several different accounts according to state law (Table 15). The largest recipients of federal mineral royalties in Utah are the Permanent Community Impact Fund and the Department of Transportation. The funds distributed to the Department of Transportation are then distributed to local governments to fund local highways in proportion to the amount of mineral lease money generated by each county. The Permanent Community

Impact Fund makes loans and grants to state agencies and subdivisions of state government impacted by mineral resource development. Unlike the funds administered by the Department of Transportation, which are distributed in proportion to royalties generated in the county, the Permanent Community Impact Fund is distributed by a state-appointed board in response to proposals submitted by local governments. Therefore, the distribution of funds by the Permanent Community Impact Fund to the various counties may vary from the amount of royalty generated. The payments in lieu of taxes cited in Table 15 are not the payments in lieu of taxes made by the federal government for federal land in Utah but are payments made by the state government to counties for lands controlled by the School and Institutional Trust Lands Administration, state Division of Parks and Recreation and the state Division of Wildlife Resources.

**Table 15      Distribution of Federal Mineral Royalties in Utah**

	Percent
Permanent Community Impact Fund	32.50
State Board of Education	2.25
Utah Geological Survey	2.25
Water Research Laboratory	2.25
Department of Transportation	40.00
Department of Community and Culture	5.00
Payments in Lieu of Taxes	52 cents per acre
Permanent Community Impact Fund	Remainder
Note: The amount paid for Payments in Lieu of Taxes has been adjusted annually since 1994 according to the Consumer Price Index.	
Source: Utah State Code, Title 59, Chapter 21.	

The School and Institutional Trust Lands Administration (SITLA) controls mineral rights on approximately 4.4 million acres in Utah. These lands are held in trust for the public schools in Utah and 11 other beneficiaries and were established at statehood and through land exchanges with the federal government. During 2006, royalties paid for oil and gas extraction on SITLA lands were \$82.7 million. This was 51.0 percent of total SITLA revenue for 2006. These funds are not returned to the county of origin, but are placed in a permanent fund managed by the state treasurer on behalf of the public schools as a beneficiary or distributed to the appropriate beneficiary as mandated. Dividends and interest from the Public School Fund are distributed annually to all Utah public schools based on an established formula.

In addition to royalties, there is an oil and gas severance tax in Utah and an oil and gas conservation fee which are levied on all production in the state. The Oil and Gas Severance Tax is placed in the state general fund and the tax rate varies from 3 to 5 percent of the sales price. The Oil and Gas Conservation Fee funds the state Division of Oil, Gas and Mining. The fee is imposed at a rate of 0.2 percent of the value of production.

Both the Oil and Gas Severance Tax and the Oil and Gas Conservation Fee have significantly increased in recent years (Table 16). The Oil and Gas Severance Tax increased by 82 percent from 2001 to 2006 while the Oil and Gas Conservation Fee increased by 102 percent. The drop from 2001 to 2002 was due to the wellhead price of natural gas produced in Utah dropping from \$3.52 per MCF in 2001 to \$1.99 per MCF in 2002. These data reflect statewide oil and gas operations and are not specific to the Uinta Basin.

**Table 16 State Tax Collections Related to Oil and Gas Production, 2001-2006**

	<b>Oil and Gas Severance Tax</b>	<b>Oil and Gas Conservation Fee</b>
2001	\$39,357,798	\$2,748,318
2002	18,893,082	1,710,219
2003	26,745,279	1,943,755
2004	36,659,808	2,696,250
2005	53,484,320	3,631,963
2006	71,513,869	5,560,449
Note: Years are state fiscal years.		
Source: Utah State Tax Commission		

### 5.1 Uinta Basin

The largest direct fiscal impacts on the Uinta Basin due to oil and gas operations in the area are property taxes paid by the operating companies and federal mineral royalties distributed to the local governments by the Utah Department of Transportation. The Utah State Tax Commission centrally assesses oil and gas properties using a net present value approach applied to future production. The local county treasurers bill and collect the taxes. Property taxes are levied by numerous units of local government, including county and city governments, school districts, and special service districts.

Property taxes paid on oil and gas properties are a significant portion of total property taxes in the Uinta Basin (Table 16). During 2006, the oil and gas industry paid nearly 40 percent of total property taxes in the two Uinta Basin counties. Table 16 refers to all property taxes paid to various government entities in the two counties, not just the county governments. As prices of crude oil and natural gas have increased in recent years, the net present value of future production has increased. This, coupled with rising production, has resulted in the amount of property taxes paid by the oil and gas industry in the Uinta Basin increasing by nearly four times over the past 10 years, not adjusting for inflation. Oil and gas property taxes have been rising faster in Uintah County than in Duchesne County, reflecting rising natural gas production in the county. Property taxes paid on oil and gas production increased by 440 percent in Uintah County from 1997 to 2006, and by 122 percent in Duchesne County. Given the rising production and expected



continuation of current energy prices, the property taxes paid by the oil and gas production industry in the Uinta Basin should continue to rise into the future.

**Table 17 Oil and Gas Property Tax Payments in the Uinta Basin, 1997-2006**

	Duchesne County		Uintah County		Uinta Basin Total	
	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax
1997	\$2,412,970	27.2	\$2,389,667	15.7	\$4,802,637	20.0
1998	2,353,888	27.9	2,858,447	18.1	5,212,335	21.5
1999	1,561,466	21.3	2,309,639	15.6	3,871,105	17.5
2000	1,749,689	19.7	2,579,728	16.9	4,329,417	17.9
2001	2,221,385	23.1	3,449,316	20.8	5,670,701	21.7
2002	1,773,249	18.4	4,054,227	22.5	5,827,476	21.1
2003	1,739,101	17.2	4,276,125	21.9	6,015,226	20.3
2004	2,407,040	21.8	5,985,003	25.3	8,392,043	24.2
2005	3,640,044	27.8	8,241,224	33.0	11,881,268	31.2
2006	5,358,661	33.9	12,895,362	41.1	18,254,024	38.7

Source: Utah State Tax Commission, Property Tax Division Annual Reports

The funds generated through federal mineral royalties that are returned to the Uinta Basin through the Utah Department of Transportation are also a significant source of revenue for the local governments. These funds actually exceed the amount of property tax paid by the oil and gas industry. During 2006, Duchesne and Uintah Counties collectively received \$30 million dollars in federal mineral royalties returned to them by the Department of Transportation. This was a 296 percent increase over the amount returned in 2001.

**Table 18 Federal Mineral Royalties Returned by UDOT to the Uinta Basin, 2001-2006**

	Duchesne County	Uintah County	Uinta Basin Total
2001	\$789,854	\$6,856,410	\$7,646,264
2002	718,112	3,031,081	3,749,193
2003	678,705	6,893,486	7,572,192
2004	931,428	11,767,611	12,699,038
2005	1,903,292	16,704,532	18,607,824
2006	2,750,055	27,500,128	30,250,182

Note: Years are state fiscal years.  
Source: Utah Department of Transportation

Table 18 includes data on all royalties from federal mineral leases in Utah, not just oil and gas operations. Although there are some other federal mineral leases in the Uinta Basin, notably gilsonite, by far the majority of royalties are due to oil and gas production.

Royalties paid to SITLA due to production of oil and gas in the Uinta Basin rose significantly from 2005 to 2006 (Table 18). In 2005, oil and gas production in the Uinta Basin resulted in \$23 million in SITLA royalties. Rising production and prices resulted in a 54 percent increase in 2006, with over \$34 million in SITLA royalties paid.

**Table 19 Royalties Paid for Production on SITLA Lands in the Uinta Basin, 2005-2006**

	Duchesne County	Uintah County	Uinta Basin Total
2005	\$2,976,668	\$19,990,367	\$22,967,035
2006	2,686,706	32,720,101	35,407,575
Note: Years are state fiscal years.			
Source: School and Institutional Trust Lands Administration			

State personal income taxes as a result of oil and gas E&P activities in the Uinta Basin is estimated at just over \$18 million for 2006 (Table 20).

**Table 20 Personal State Income Taxes due to Oil and Gas E&P in the Uinta Basin**

	Uinta Basin Total
Total Wages due to Oil and Gas E&P, \$1,000	\$448,246
Personal State Income Taxes, \$1,000	18,026
Source: Author's Calculations. Details of the estimation are in Section 6.	

## 6 Technical Notes and Methodology

Industries are classified by economists according to the North American Industry Classification System (NAICS), which was developed by the Office of Management and Budget in cooperation with other federal agencies and foreign governments (Office of Management and Budget, 2002). The NAICS codes replaced the Standard Industrial Classification (SIC) Codes that had been used since the 1930s. This change was prompted by structural changes in the U.S. economy, with the services sector becoming a much larger portion of the economy and more complex than when the SIC codes were developed. In the switch, the 10 major industrial sectors under the SIC codes were replaced with 20 major sectors under the NAICS Codes. Many of the industrial sectors under the SIC codes were split among two or more of the redefined sectors under the NAICS codes, making comparisons difficult. The NAICS codes better explain the structure of the current economy but make time series data difficult to compile.

Under the NAICS system, companies are classified under 20 major industrial categories and the categories are further subdivided as needed. There are three classifications directed related to the oil and gas exploration and production industry.

These are NAICS 211 – Oil and Gas Extraction, NAICS 213111 – Drilling Oil and Gas Wells, and NAICS 213112 – Support Activities for Oil and Gas Operations. These three classifications cover the operating companies, drilling companies, and service companies, respectively. For this study, we are considering them collectively as the oil and gas E&P industry.

Other local businesses and industries benefit from E&P activities. Examples of these are seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and utilities providing electricity. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. These types of effects are referred to as the indirect and induced impacts. The indirect and induced impacts can be calculated from the value of transactions between the E&P industry and these other businesses using input-output economic models.

### **6.1 NAICS Codes Related to Oil and Natural Gas Production**

For this study, we are considering the following three NAICS classifications collectively as the oil and gas E&P industry. The definitions listed are those developed by the Office of Management and Budget.

NAICS 211 – Oil and Gas Extraction Industries in the Oil and Gas Extraction subsector operate and/or develop oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operation of separators, emulsion breakers, desilting equipment and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. The subsector includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids.

Establishments in this subsector include those that operate oil and gas wells on their own account and for others on a contract or fee basis. Establishments primarily engaged in providing support services, on a fee or contract basis, required for the drilling or operation of oil and gas wells (except geophysical surveying and mapping, mine site preparation, and construction of oil/gas pipelines) are classified in Subsector 213, Support Activities for Mining.

NAICS 213111 – Drilling Oil and Gas Wells This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. This industry includes contractors that specialize in spudding in, drilling in, redrilling, and directional drilling.



NAICS 213112 – Support Activities for Oil and Gas Operations This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related activities). Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars; well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells, shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells.

## **6.2 Economic Impact Modeling**

Economic impacts on an economy arise from exogenous sources or activities that result in new funds being injected into the economy. Examples include are products that are exported and new construction funding. It is important for outside funds to be injected into a regional economy for economic impacts to occur. If an activity is financed by funds from inside a regional economy, known as residentiary spending, then the funds are diverted from one industrial sector to another and there is no net multiplier effect or economic impact. Crude oil and natural gas from the producing areas in Utah are exported to refineries and markets in other portions of the country. Exporting oil and gas results in an inflow of funds which creates a positive economic impact on the area.

In this study, economic impact is used to mean the impact of oil and gas E&P activities on the amount of employment and wages paid in the various producing regions in Utah. Many similar studies present the total economic output of an activity as the economic impact; this is the sum of all transactions in a supply chain and can be much larger than the value of the final good or service provided to the end consumer. Similarly, many authors apply economic output multipliers to all spending related to an activity, with no distinction between export-based and residentiary spending. The result is often termed “economic contribution” and presented as economic impact. As with all economic output calculations, the result is much larger than the value of the final product delivered to an end consumer.

The oil and gas exploration and production industry has a direct impact on the local economy through employment and wages paid. In addition, there are additional indirect and induced impacts. Indirect impacts result from local spending by the E&P industry and induced impacts arise from employees of the E&P industry spending their earnings.

Examples of indirect impacts are employment and wages at seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and utilities providing electricity. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. The indirect and induced

impacts can be calculated from the value of transactions between the E&P industry and these other businesses.

The RIMS II Input-Output model developed by the Bureau of Economic Analysis was used to determine the indirect and induced economic impacts of the oil and gas exploration and production industry in the Uinta Basin. The RIMS II model is based on an accounting framework called an input-output table. From each industry, an input-output table shows the industrial distribution of inputs purchased and outputs sold. The Bureau of Economic Analysis has developed a national input-output table (Bureau of Economic Analysis, 1997). To develop region-specific input-output tables, the national input-output table is modified using regional economic data. The producer portion of the input-output table is modified using location quotients at the six-digit NAICS level based on personal income data for service-producing industries and wage and salary data for nonservice-producing industries. Household data is modified to account for commuting across regional boundaries and savings and taxes. Once the national input-output table is regionalized, the multipliers are estimated through use of matrix algebra. The RIMS II model estimates the employment and wage impacts by major NAICS industry.

Data on spending by the E&P industry in the Uinta Basin was obtained via a survey of operating, drilling and service companies operating in the area. Personnel with the Bureau of Economic and Business Research at the University of Utah cooperated with the Independent Petroleum Association of the Mountain States (IPAMS) to develop survey forms with input from several representatives of the petroleum industry. IPAMS distributed the survey forms to operating, drilling and service companies operating in the Uinta Basin and the forms were returned to the Bureau of Economic and Business Research. Data from returned survey forms was totaled by spending category. Using data on total production of oil and gas, number of wells spudded and employment reported by government agencies, the total spending reported by responding companies was expanded to total industry spending in the region. The multipliers from the RIMS II model were then applied to the total spending by category to determine the indirect and induced employment and wages.

State income tax impacts were estimated by calculating the ratio of the Utah income tax liability for Duchesne and Uintah Counties to the total of the total earnings by place of work for the two counties as determined by the Bureau of Economic Analysis. This average of this ratio for the years 2003 through 2005 was 4.02 percent. This ratio was then applied to the total estimated earnings due to oil and gas E&P in the Uinta Basin of \$448,246 thousand to estimate the state personal income tax.

## 7 References

- Bureau of Economic Analysis. 2007.** Local Area Personal Income. <http://www.bea.gov/regional/reis/>. Downloaded Nov. 6, 2007.
- Bureau of Labor Statistics. 2007.** Quarterly Census of Employment and Wages. <http://stats.bls.gov/cew/home.htm>. Downloaded Sept. 9, 2007.
- Energy Information Administration. 2007.** *Short-Term Energy Outlook September 2007*. <http://www.eia.doe.gov/emeu/steo/pub/contents.html>. Downloaded Sept. 11, 2007.
- Isard, W., I.J. Azis, M.P., Drennan, R.E. Miller, S. Saltzman, and E. Throbecke. 1998.** *Methods of Interregional and Regional Analysis*. Ashgate Publishing Limited. 490 pp.
- Minerals Management Service. 2007.** MRM Statistical Information. <http://www.mrm.mms.gov/MRMWebStats/default.aspx>. Downloaded Oct. 3, 2007.
- Office of Management and Budget. 1997.** *North American Industry Classification System*. 1247 pp.
- Schaffer, W. A. 1999.** *Regional Impact Models*. West Virginia University Regional Research Institute. <http://www.rr.i.wvu.edu/WebBook/Schaffer/index.html>. Accessed July 18, 2007. 80 pp.
- U.S. Bureau of the Census. 2007.** Subcounty Population Data Sets. <http://www.census.gov/popest/cities/SUB-EST2006-states.html>. Downloaded Sept. 12, 2007.
- Utah Department of Transportation. 2007.** Mineral Lease Distributions. <http://www.dot.utah.gov/main/f?p=100:pg:11808295696151236794:::1:T,V:135,>. Downloaded Oct. 4, 2007.
- Utah Division of Oil, Gas and Mining. 2007.** Production Reports. <http://oilgas.ogm.utah.gov/Publications/Publications.htm>. Downloaded Sept. 12, 2007.
- Utah Geological Survey. 2006.** *Utah! 100 Years of Exploration and Still the Place to Find Oil and Gas*. Public Information Series 71. nonpaginated.
- Utah Governor's Office of Planning and Budget. 2000.** *Federal Land Payments in Utah*. <http://governor.utah.gov/dea/Publications/Report.pdf>. Downloaded Sept. 11, 2007.



**Utah State Tax Commission. 2007.** Revenue Reports (TC-23).  
<http://www.tax.utah.gov/esu/revenue/index.html>. Downloaded Nov. 5, 2007.

**Utah State Tax Commission. 2007.** Utah Income and Corporate Tax Statistics.  
<http://www.tax.utah.gov/esu/income/index.html>. Downloaded Nov. 2, 2007.

## **ATTACHMENT D**

## ATTACHMENT D

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# **The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry Phase II - Carbon and Emery Counties**

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## List of Acronyms & Abbreviations

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<b>BCF</b>	Billion Cubic Feet
<b>BLM</b>	Bureau of Land Management
<b>BLS</b>	Bureau of Labor Statistics
<b>DOGM</b>	Utah Division of Oil, Gas and Mining
<b>E&amp;P</b>	Exploration and Production
<b>IPAMS</b>	Independent Petroleum Association of the Mountain States
<b>MCF</b>	Thousand Cubic Feet
<b>MMCF</b>	Million Cubic Feet
<b>MW</b>	Megawatts
<b>NAICS</b>	North American Industry Classification System
<b>NYMEX</b>	New York Mercantile Exchange
<b>PADD</b>	Petroleum Administration for Defense District
<b>SIC</b>	Standard Industrial Code
<b>SITLA</b>	School and Institutional Trust Lands Administration
<b>RIMS II</b>	Regional Input-Output Modeling System
<b>UDOT</b>	Utah Department of Transportation
<b>USFS</b>	U.S. Forest Service
<b>WTI</b>	West Texas Intermediate Crude



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# The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry

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## 1 Executive Summary

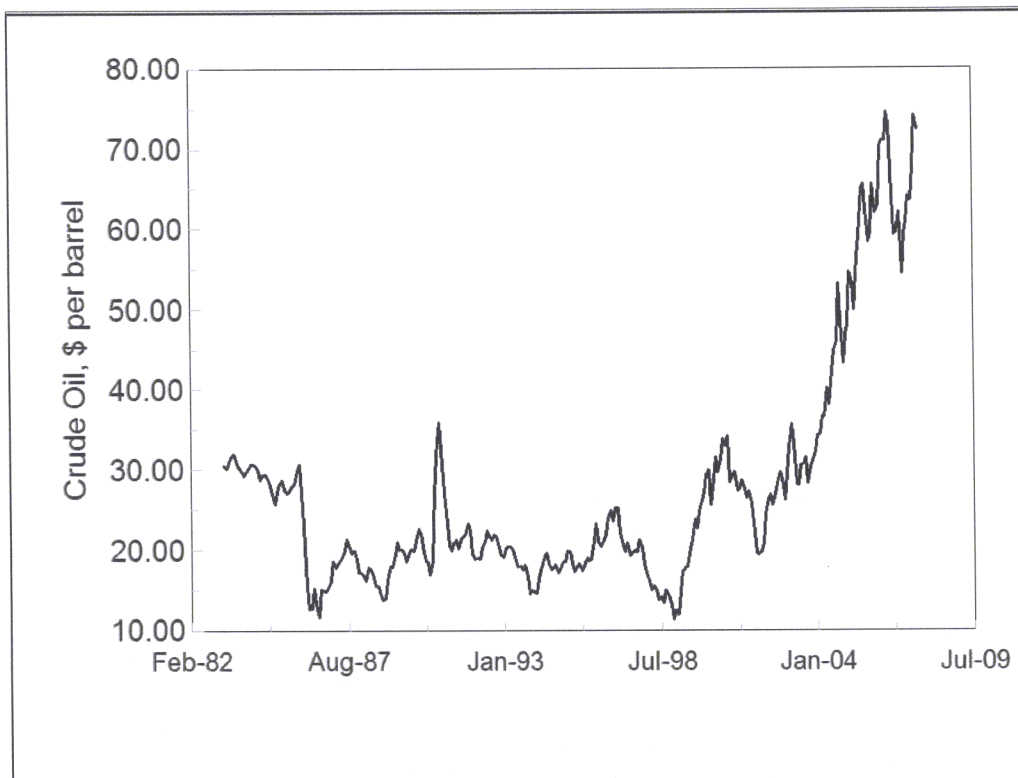
*The Bureau of Economic and Business Research at the University of Utah has completed an economic impact study of the oil and gas exploration and production industry in Carbon and Emery Counties in east-central Utah. Carbon and Emery Counties are an increasingly important center of natural gas production in Utah. Rapidly rising energy prices in recent years have stimulated greater production of both crude oil and natural gas in the northern Rocky Mountains, and the study area is an integral part of the oil and gas industry in the Rocky Mountain area. The study area's natural gas production increased 316 percent from 23.7 BCF in 1997 to 98.5 BCF in 2006.*

*The rise in oil and gas activity is having a noticeable and positive economic impact on Carbon and Emery Counties. During 2006, the oil and gas exploration and production industry was directly responsible for an estimated 137 jobs and \$6.5 million in wages in the two counties. When including indirect and induced impacts due to company and employee spending, the oil and gas industry accounted for 524 jobs and \$22.2 million in wages in the area. This represents 4.0 percent of total employment and 4.9 percent of total wages in the study area.*

*The industry also has a sizeable fiscal impact on local governments in the two county area. Property taxes paid on producing oil and gas wells were \$10.2 million in 2006 and accounted for 24.3 percent of all property taxes paid in the two counties. Federal mineral royalties distributed to the two counties by the Utah Department of Transportation during 2006 amounted to \$13.7 million.*

## 2 Background

The recent rise in the price of gasoline has refocused attention on energy markets with an intensity not seen since the collapse of oil prices in the mid 1980s. In contrast to the energy shortage of the 1970s, which was largely driven by constrained supply due to geopolitical issues, the recent runup is a result of increasing demand and decreasing supply from aging fields. Crude oil, and to a lesser extent natural gas, is a worldwide commodity with international supply and demand factors determining prices. Consumption of petroleum products is up worldwide, with developing countries driving the increase. Consumption of petroleum in China grew over 30 percent from 2002 to 2006. This rise in demand has resulted in a dramatic increase in the nominal price of crude oil (Figure 1).



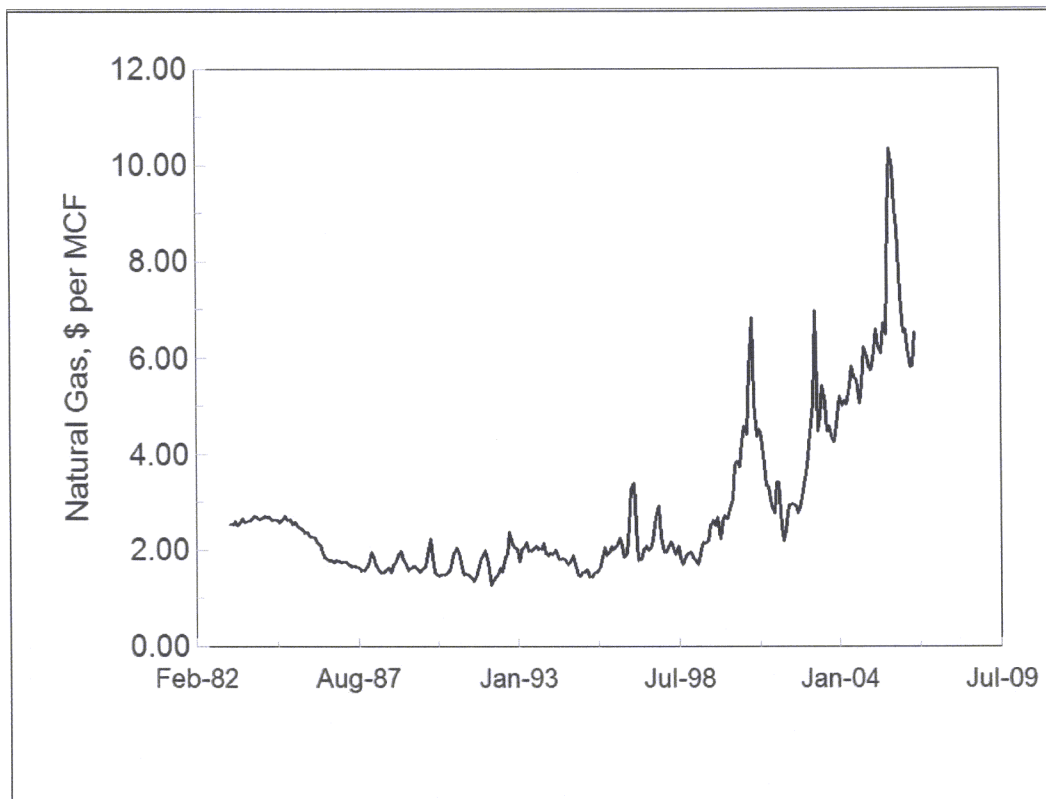
**Figure 1** Crude Oil Price: NYMEX Near Month Contract for Light Sweet Crude

Source: Energy Information Administration

The price of crude oil was relatively flat during the 1990s, with prices in the \$20 to \$30 range. Then, from a low of \$11.31 per barrel in December 1998, crude oil increased to over \$70 per barrel in April 2006 and reached \$79.63 in September 2007. Forecasts expect crude oil prices to remain near current levels in the future.

In September 2007 the Energy Information Administration forecast the price of West Texas Intermediate Crude<sup>1</sup> would remain over \$71 per barrel through the end of 2008. During November 2007, prices were in the \$90 per barrel range.

At the same time, natural gas prices have increased from historically low values around \$2 per MCF in the late 1990s to a current price of about \$7 per MCF, with increased volatility in recent years (Figure 2). Natural gas is more of a regional commodity than crude oil, with more dependence on local supply and demand factors. The necessity of transporting natural gas by pipeline results in availability of transportation infrastructure having a large influence on regional prices. Currently, there is a shortage of pipeline capacity in the Rocky Mountains so wellhead natural gas prices in the area are depressed compared to the rest of the country.



**Figure 2 Average U.S. Wellhead Price of Natural Gas**  
Source: Energy Information Administration

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<sup>1</sup>West Texas Intermediate (WTI) refers to a crude stream produced in Texas and Oklahoma that is the most common reference or “marker” for pricing crude oil and, along with several other domestic and foreign crude streams, is acceptable for settling New York Mercantile Exchange contracts for light, sweet crude oil.





amount of natural gas produced in PADD III had dropped to 62.5 percent of total production while the amount from PADD IV had increased to 17.0 percent. Additionally, natural gas production in the Rocky Mountains is increasing approximately five percent annually. The increase in crude oil and natural gas production in the Rocky Mountain states is creating an economic boom in the producing areas.

**Table 1 U.S. Crude Oil and Natural Gas Production by PADD, 2002-2005**

	PADD I	PADD II	PADD III	PADD IV	PADD V	United States Total
Crude Oil, thousand barrels						
2002	7,458	164,635	1,174,305	102,982	947,745	2,097,124
2003	7,170	161,360	1,162,869	105,931	636,123	2,073,453
2004	6,941	159,309	1,103,743	113,069	600,239	1,983,302
2005	8,299	161,587	1,023,499	123,956	572,765	1,890,106
Percent Change, 2002-2005	11.3	(1.9)	(12.8)	20.4	(39.6)	(9.9)
Dry Natural Gas, MMCF						
2002	453,774	2,432,537	12,622,766	2,641,749	776,962	18,927,788
2003	521,824	2,336,271	12,662,381	2,797,202	780,866	19,098,544
2004	520,240	2,428,676	11,960,955	2,935,503	745,517	18,590,891
2005	522,997	2,413,736	11,298,362	3,075,234	763,907	18,074,237
Percent Change, 2002-2005	15.3	(0.8)	(10.5)	16.4	(1.7)	(4.5)
Source: Energy Information Administration						

Despite the common perception of being vertically integrated, the oil and gas industry is highly fragmented, especially at the exploration and production stage. Many companies concentrate exclusively on oil and gas production and have no interest in downstream operations such as pipelines, refineries and product distribution. Additionally, much of the work conducted in the producing fields is contracted to other companies that specialize in different aspects of drilling and maintaining the wells. Few of the operating companies operate their own drill rigs but instead contract with companies that specialize in drilling. Other companies specialize in different operations such as grading well locations, well surveying, running and pulling well casings, cementing wells, perforating well casings and reservoir treatment and stimulation. The operating, drilling and service companies collectively constitute the oil and gas exploration and production industry.

Many other industries benefit from spending by the oil and gas industry. These include consulting geologists and engineering companies, environmental consultants, vendors of oil field equipment, and pipeline and trucking companies. Spending by oil industry employees also benefits the local economy. These economic benefits beyond direct employment in the exploration and production

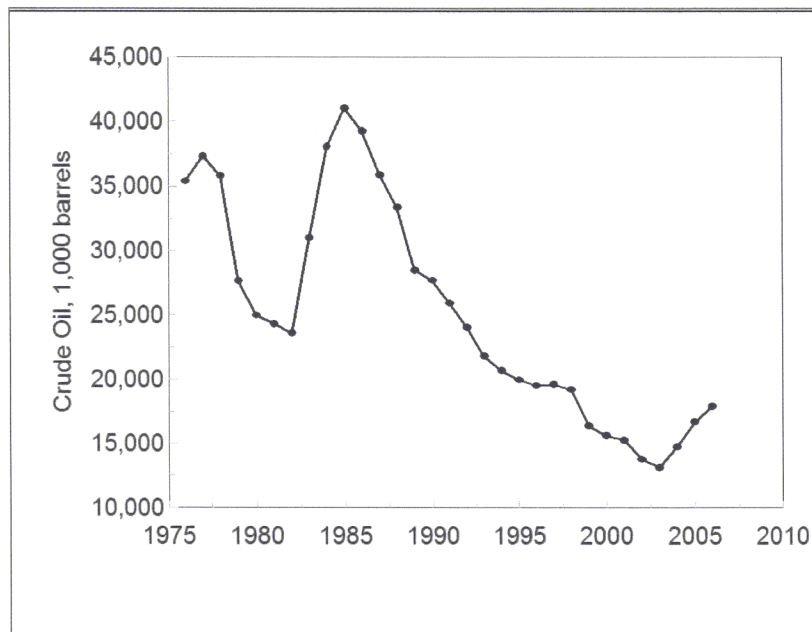
industry are known as indirect and induced benefits, and are the source of the “multiplier” effect. This study examines the structure of the Utah oil and gas exploration and production industry and the total economic impact on the producing areas.

### **3 Utah’s Oil and Gas Industry**

The Utah oil and gas industry started in 1891, when a water well being drilled in Farmington Bay near the Great Salt Lake encountered natural gas at a depth of 1,000 feet. Gas from several wells in this area was transported to Salt Lake City through wooden pipelines for several years until shifting sand in the lakebed plugged the wells. The first oil was found in the early 1900s near Rozel Point at the north end of the Great Salt Lake, near Mexican Hat in southeastern Utah, and near the town of Virgin in southwestern Utah. The first large-scale commercial oil well was drilled near Vernal in 1948. Since the early 1960s, Utah has consistently ranked in the top 15 oil-producing states and in recent years has experienced a dramatic rise in natural gas production. During 2005, Utah ranked 15<sup>th</sup> in crude oil production out of 31 states and two Federal Offshore Areas and 11<sup>th</sup> in dry natural gas production out of 33 states and the Federal Offshore Area in the Gulf of Mexico.

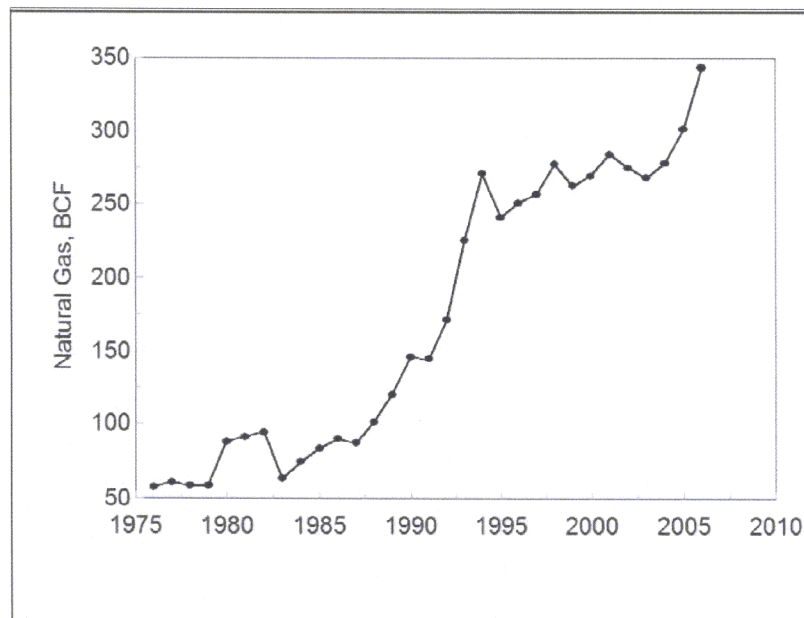
Utah is contributing to the recent growth in crude oil and natural gas production taking place in the Rocky Mountain states (PADD IV). The state’s 2006 crude oil production of 17.9 million barrels was a 37 percent increase over the recent low of 13.1 million barrels produced in 2003 (Figure 4). Although a substantial increase from the recent past, 2006’s output was still only 44 percent of the all-time high of 41.1 million barrels produced in 1985.





**Figure 4 Utah Crude Oil Production**  
Source: Utah Division of Oil, Gas and Mining

There has been an even greater rise in natural gas production in Utah. In 2006, Utah's marketed natural gas production hit an all-time high of 343 BCF, up 502 percent from 57 BCF in 1976 (Figure 5).



**Figure 5 Utah Marketed Natural Gas Production**  
Source: Utah Geological Survey

Not all gross withdrawals of natural gas are marketed to consumers. Low prices of natural gas during the late 1980s and early 1990s resulted in much of the gas produced in Utah at the time not being marketable. A large portion of the gas withdrawn from wells in Utah during this period was reinjected into the geologic formations to maintain pressure and oil production. The amount of gas used for repressuring in Utah reached a high in 1983, when 65 percent of gross withdrawals were reinjected to maintain pressure. Currently, approximately 95 percent of natural gas withdrawals in Utah are marketed. Most of the gas that is not marketed is used for fuel at the production site or is accounted for by nonhydrocarbon gases that are removed from the production stream prior to marketing.

Average production per well of both crude oil and natural gas has been declining in Utah, so additional drilling will have to continue to maintain production at current levels. Although natural gas production has been steadily rising and crude oil production in Utah has rebounded in recent years, production per individual well has been declining. Natural gas production per gas well peaked at 740 MMCF in 1962. Production per well steadily declined to 67 MMCF in 2000 before rising to 84 MMCF in 2006. Similarly, crude oil production per oil well peaked at 57,330 barrels in 1959, then dropped to 6,727 barrels in 2003. Crude oil production per well in Utah averaged 7,308 barrels during 2006.

During 2006, 129 different operating companies reported crude oil and natural gas production to the Utah Division of Oil, Gas and Mining. Production occurred in 11 of Utah's 29 counties. Duchesne County had the highest oil production with 6,401,299 barrels while Uintah County led natural gas production with gross withdrawals of 204 BCF.

Six different areas in Utah currently have significant production of oil and/or natural gas. These areas are defined by geology. Additionally, these areas are somewhat isolated from one another economically, especially in terms of the oil and gas exploration and production (E&P) industry. The major oil and gas producing area in Utah is the Uinta Basin in the northeastern part of the state. Vernal is a center of the oil and gas industry in the Uinta Basin with many of the producing, drilling and service companies maintaining offices in the area. Other producing areas in Utah include both conventional plays and coalbed methane in Carbon and Emery Counties, the Paradox Basin in San Juan County, the Uncompahgre Uplift in Grand County, the Thrust Belt in Summit County and the recently discovered Hingeline in the central part of the state.

The Paradox Basin, Uncompahgre Uplift, and Thrust Belt all extend over state lines to adjacent states. Many of the workers involved in operating wells in these areas are actually employed in other states. Expanded gas operations in Carbon and

Emery Counties and new oil production in the Hingeline are fairly recent discoveries and an oil service industry has not developed in these areas.

Defining the oil and gas E&P industry is a key element for a study of this type. Economists use the numerical North American Industry Classification System (NAICS) developed by the Office of Management and Budget to classify industries for reporting employment and earnings. The two-digit NAICS codes are divided into 20 major industrial sectors. These two-digit major sectors are then further subdivided as necessary with the addition of more numerical digits after the first two.

The NAICS codes have three industrial subdivision classifications that directly apply to the oil and gas E&P industry. These are NAICS 211 – Oil and Gas Extraction, NAICS 213111 – Drilling Oil and Gas Wells, and NAICS 213112 – Support Activities for Oil and Gas Operations. For purposes of this study, these three industries are collectively considered the oil and gas E&P industry. Additional information on the NAICS codes for these three industries is available in Section 6.

The following section summarizes oil and gas production in Carbon and Emery Counties. Also included are economic data for Carbon and Emery Counties to place the oil and gas E&P industry in context.

### **3.1 Carbon and Emery Counties**

For purposes of this report, the study area is defined as Carbon and Emery Counties, Utah. Coalbed methane production makes up a significant portion of the gas produced in the study area. Coalbed methane is reported as part of the natural gas production in Utah and when referring to production in the study area, the terms methane and natural gas are used synonymously in this report. Although there is potential for coalbed methane production from other coal deposits in Utah, and exploration has been conducted in other areas of the state, coalbed methane production has failed to materialize outside of Carbon and Emery.

The study area in central Utah has emerged as a significant coalbed methane producer over the past 15 years. Initial discoveries in the area were the conventional natural gas fields at Clear Creek in 1951 and at Ferron in 1957. Production noticeably increased in the early 1990s with discovery of the Drunkards Wash Field southwest of Price. Texaco Exploration and Production drilled two wells in 1988 and in 1991 River Gas Corporation took a 92,000-acre farmout from Texaco and commenced exploration. Between 1994 and 1997, exploratory drilling by Texaco established the Buzzard Bench Field between Huntington and Ferron. Meanwhile, Anadarko Petroleum Corp. established the Helper Field north of Price in 1993. Through a series of corporate buy-outs and mergers, ConocoPhillips has emerged as the major operator in the Drunkards Wash Field and is responsible for



almost half of total production in Carbon and Emery Counties. Coalbed methane development and production peaked in 2001-2002 and has declined since then. Recent discoveries of significant conventional gas deposits in deeper reservoirs by Bill Barrett Corporation in the Nine Mile and Peter's Point areas of northeastern Carbon County has brought renewed development activity to this area and started to reverse the overall gas production decline in 2006.

Carbon and Emery Counties contain just under 3.8 million acres (Table 2), with the federal government controlling nearly 72 percent of the land. The Bureau of Land Management is the major federal land-managing agency with responsibility for 2.5 million acres or 65 percent of the total. The U.S. Forest Service manages 6.3 percent of the land in the two counties. There is a small amount of National Park Service land where Capitol Reef National Park extends into the southwest corner of Emery County. With such a large portion of the land controlled by the federal government, the oil and gas E&P industry is highly sensitive to federal land management policy.

The majority of state land in the Carbon and Emery Counties is controlled by the Utah School and Institutional Trust Lands Administration (SITLA). SITLA administers 11.6 percent of the land in the two counties with the Utah Division of Wildlife Resources and the Utah Division of State Parks and Recreation controlling lesser amounts of land. There is a minor amount of Indian land along the Green River at the eastern edge of the two counties. Only 16.2 percent of the land in the two counties is privately held.

**Table 2 Land Ownership in Carbon and Emery Counties**

	<b>Carbon County, acres</b>	<b>Emery County, acres</b>	<b>Two-County Area Total, acres</b>	<b>Percent of Total</b>
Bureau of Land Management	419,835	2,062,072	2,481,907	65.3
US Forest Service	30,237	210,652	240,889	6.3
National Park Service	0	2,085	2,085	0.1
<b>Total Federal</b>	<b>450,162</b>	<b>2,274,808</b>	<b>2,724,970</b>	<b>71.7</b>
State Parks	0	394	394	0.0
State Wildlife Lands	13,857	2,837	16,694	0.4
State Trust Lands	110,029	331,854	441,883	11.6
<b>Total State Lands</b>	<b>123,887</b>	<b>335,085</b>	<b>458,972</b>	<b>12.1</b>
Indian Lands	73	37	110	0.0
Private	373,511	240,425	613,936	16.2
<b>Total</b>	<b>947,632</b>	<b>2,850,356</b>	<b>3,797,988</b>	<b>100.0</b>
<b>Source: Utah Governor's Office of Planning and Budget</b>				

Production of both natural gas and crude oil in the study area has increased dramatically over the past 10 years, although there has been a decrease in natural

gas production in recent years. Although 2006 crude oil production in the two counties was nearly 10 times that of 1997, the area remains a minor producer of crude oil in Utah (Table 3). The 2006 production of 31,942 barrels of crude oil was 0.2 percent of statewide production.

**Table 3 Carbon and Emery Counties Crude Oil Production, 1997-2006**

	Crude Oil, barrels			
	Carbon County	Emery County	Two-County Area Total	State Total
1997	0	3,354	3,354	19,592,548
1998	0	3,662	3,662	19,223,542
1999	527	1,649	2,176	16,376,521
2000	211	3,279	3,490	15,609,030
2001	128	4,552	4,680	15,273,926
2002	46	2,493	2,539	13,770,860
2003	1,885	6,191	8,076	13,098,424
2004	4,661	4,657	9,318	14,799,208
2005	9,468	3,196	12,664	16,675,302
2006	27,906	4,036	31,942	17,926,580
Percent of State Total, 2006	0.2	0.0	0.2	100.00
Source: Utah Division of Oil, Gas and Mining				

The study area is primarily a producer of natural gas, while oil production is minor, generally as an associated byproduct of gas production. Over the past 10 years, natural gas production in the area increased from 23.7 BCF in 1997 to 104.6 BCF in 2002 before declining to 98.5 BCF in 2006 (Table 4). Even with the decline from 2002, production in 2006 was over four times the level in 1997. During 2006, the two counties were responsible for 27.7 percent of natural gas production in Utah. Although Carbon County produces the bulk of the natural gas from the two counties, production in Emery County has been growing faster. From 1997 to 2006, natural gas production in Emery County increased by over 1,600 percent, while production in Carbon County increased by only 262 percent.

**Table 4 Carbon and Emery Counties Natural Gas Production  
(Gross Withdrawals), 1997-2006**

	Natural Gas, MCF			
	Carbon County	Emery County	Two-County Area Total	State Total
1997	22,760,216	926,911	23,687,127	272,553,774
1998	31,903,361	1,345,422	33,248,783	297,503,246
1999	50,175,216	2,317,596	52,492,812	277,494,312
2000	72,586,085	4,042,810	76,628,895	281,170,016
2001	86,532,946	7,718,744	94,251,690	300,975,578
2002	90,700,883	13,901,494	104,602,377	293,030,004
2003	85,179,739	17,213,152	102,392,891	287,141,238
2004	79,238,531	17,443,464	96,681,995	293,735,994
2005	74,822,590	16,606,967	91,429,557	313,465,305
2006	82,337,741	16,199,707	98,537,448	356,361,028
Percent of State Total, 2006	23.1	4.5	27.7	100.0
Source: Utah Division of Oil, Gas and Mining				

Drilling activity in the two counties reflects the rise in natural gas production that occurred in the late 1990s (Table 5). Drilling peaked with 148 wells spudded in 2001. At the time, the two counties accounted for 23.6 percent of all wells spudded in the state. Drilling declined to only 36 wells spudded in 2004, but rising gas prices stimulated additional drilling activity and the number of wells spudded hit 78 in 2006. The number of wells drilled in the area can be expected to continue to rise in the future. In September 2005, Bill Barrett Corporation announced plans and began work on an environmental impact statement to drill 750 new gas wells in the West Tavaputs area of northeast Carbon County.



**Table 5 Wells Spudded in Carbon and Emery Counties, 1997-2006**

	Wells Spudded			
	Carbon County	Emery County	Two-County Area Total	State Total
1997	41	23	64	430
1998	74	3	77	430
1999	110	16	126	283
2000	122	55	144	540
2001	104	44	148	627
2002	51	53	104	391
2003	34	14	45	480
2004	32	4	36	659
2005	59	27	86	889
2006	57	21	78	1,057
Percent of State Total, 2006	5.4	2.0	7.4	100.00
Source: Utah Division of Oil, Gas and Mining				

### 3.1.1 Carbon and Emery Counties Economy

While production of both crude oil and natural gas is increasing in the Carbon and Emery Counties, this increase must be placed in the context of the complete economy for the two counties.

The two counties had an estimated 2006 population of 29,942, down 1.5 percent from 2002 (Table 6). Major cities include Price, with an estimated 2006 population of 8,010, Huntington (2,061), Helper (1,886), Castle Dale (1,617), Wellington (1,570) and Ferron (1,569). The 2000 Decennial Census determined that 40.5 percent of the population lives in the urban area of Price. The remainder of the two counties are not densely enough populated to be considered urban.<sup>2</sup> Although it contained over 40 percent of the population of the two counties, Price accounts for only 0.15 percent of the area in the two counties.

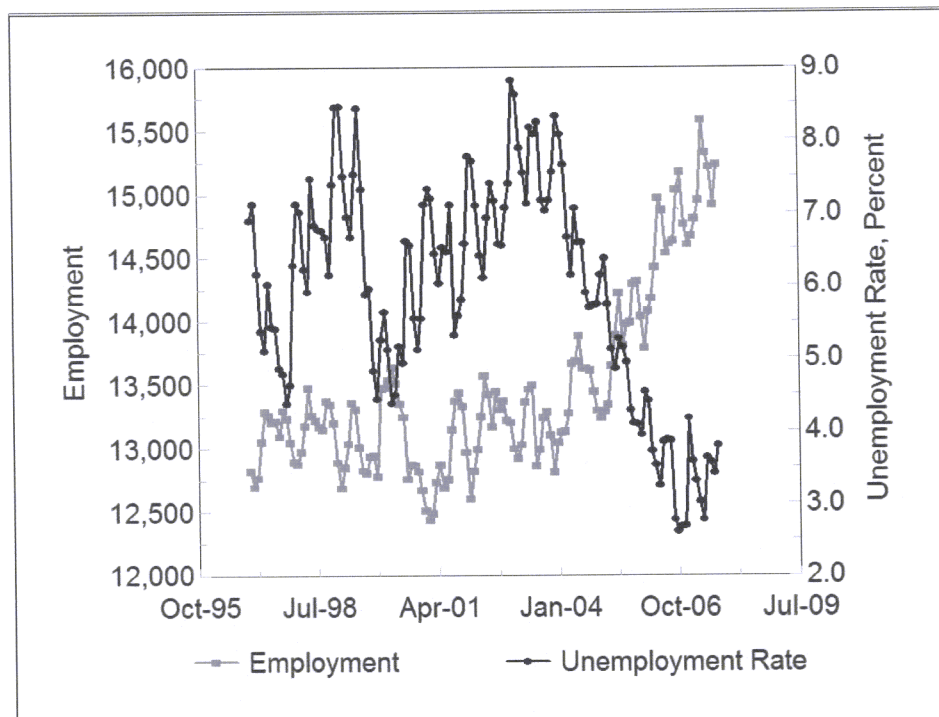
<sup>2</sup>The Bureau of the Census defines urban areas as census blocks that have a population density of at least 1,000 persons per square mile and surrounding census blocks with a population density of 500 persons per square mile. Adjacent census blocks with a lower population density are also included if they meet criteria established by the Bureau of the Census.

**Table 6 Carbon and Emery Counties Population, 2002-2006**

	Population			
	Carbon County	Emery County	Two-County Area Total	State Total
2002	19,858	10,540	30,398	2,358,330
2003	19,558	10,477	30,035	2,413,618
2004	19,385	10,493	29,878	2,469,230
2005	19,338	10,491	29,829	2,547,389
2006	19,504	10,438	29,942	2,615,129

Source: Utah Population Estimates Committee

The study area is benefitting economically from the boom in energy prices, with the unemployment rate dropping from 8.3 percent in January 2004 to 3.8 percent in September 2007 (Figure 6). Since energy prices have been increasing, employment in the study area has steadily risen, from 13,000 persons in January 2003 to 15,299 persons in September 2007. Although the unemployment rate in the area has been dropping, it has consistently been above the state average since the beginning of 1997.



**Figure 6 Employment and the Unemployment Rate in Carbon and Emery Counties**  
Source: BLS, Local Area Unemployment Statistics

The industrial structure of the two counties has significant differences from that of the state of Utah (Table 7). Mining (NAICS 21) constitutes a significant portion of the economy with both coal mining and oil and gas production figuring prominently. There is also one gypsum operation in Emery County and several sand and gravel operations. Approximately 90 percent of the Mining (NAICS 21) employment in the two counties is due to coal mining, not oil and gas production. Although coal mining employment is not disclosable by federal data agencies because of the small number of firms, the Utah Geological Survey determined that coal mining employment was 1,657 jobs in the two counties during 2006.

Utilities (NAICS 22) are also a major portion of the area's economy due to the presence of three coal-fired power plants with a total summer generating capacity of 2,387 MW. The Hunter Plant (1,320 MW) is located south of Castle Dale and the Huntington Plant (895 MW) is sited at the mouth of Huntington Canyon near Huntington; both are located in Emery County. The Carbon Plant (172 MW) is in Price Canyon north of Price in Carbon County. Although Utility industry (NAICS 22) employment is not disclosable for Emery County due to the concentration of employment in one company, the presence of the three power plants results in the electric utility industry being an important component of the area's economy.

Several other major industries have employment data that are not disclosable for Carbon or Emery Counties. This is done to protect individual company data. In Carbon County, besides Mining, employment data are nondisclosable for Agriculture, Forestry, Fishing and Hunting (NAICS 11); Educational Services (NAICS 61); and Health Care (NAICS 62). Emery County has a smaller economy than Carbon County and has eight industries with nondisclosable data. These are the same industries that were nondisclosable in Carbon plus Utilities (NAICS 22), Wholesale Trade (NAICS 42), Management of Companies and Enterprises (NAICS 55), and Administrative and Support (NAICS 56). Since employment numbers are not reported for these industries, location quotients<sup>3</sup> can not be calculated.

Industries for which employment was reported and which have low location quotients in the study area include Manufacturing (NAICS 31-32); Real Estate (NAICS 53); Professional, Scientific and Technical Services (NAICS 54); and Arts, Entertainment and Recreation (NAICS 71). Manufacturing has a location quotient of 0.32, indicating that the area is only 32 percent as dependent on Manufacturing for employment as is the state of Utah.

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<sup>3</sup>Location Quotients are the ratio of an industry's share of employment in a study area, in this case Carbon and Emery Counties, to its share in a reference area, e.g., the state of Utah.



**Table 7      Employment by Industry in Carbon and Emery Counties, 2006**

	Carbon County	Emery County	Two-County Area	Distribution, Percent	Location Quotient
<b>Private Employment</b>					
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	ND	ND	ND	NA	NA
Mining (NAICS 21)	ND	ND	ND	NA	NA
Utilities (NAICS 22)	138	ND	ND	NA	NA
Construction (NAICS 23)	393	338	731	5.6	0.69
Manufacturing (NAICS 31-32)	418	17	435	3.4	0.32
Wholesale Trade (NAICS 42)	450	ND	ND	NA	NA
Retail Trade (NAICS 44-45)	1,286	433	1,719	13.3	1.10
Transportation and Warehousing (NAICS 48-49)	300	135	435	3.4	0.92
Information (NAICS 51)	127	132	259	2.0	0.75
Finance and Insurance (NAICS 52)	192	52	244	1.9	0.41
Real Estate (NAICS 53)	59	6	65	0.5	0.33
Professional, Scientific and Technical Services (NAICS 54)	220	59	279	2.2	0.41
Management of Companies and Enterprises (NAICS 55)	58	ND	ND	NA	NA
Administrative and Support (NAICS 56)	371	ND	ND	NA	NA
Educational Services (NAICS 61)	ND	ND	ND	NA	NA
Health Care (NAICS 62)	ND	ND	ND	NA	NA
Arts, Entertainment and Recreation (NAICS 71)	71	0	71	0.5	0.37
Accommodation and Food Services (NAICS 72)	742	169	911	7.0	0.90
Other Services (NAICS 81)	342	143	485	3.7	1.50
<b>Government Employment</b>	1,978	823	2,801	21.6	1.32
<b>Total Employment</b>	9,067	3,887	12,954	100.0	1.00
ND: Not disclosed to protect individual company information.    NA: Not Applicable. Source: BLS, Quarterly Census of Employment and Wages					

Both the concentration of the coalbed methane industry and its recent development in Carbon and Emery Counties are reflected in the employment data released by the Bureau of Labor Statistics (Table 8). If an industry is dominated by one company in an area, data are not released to prevent disclosure of individual company data. Much of the employment data specific to the oil and gas industry is not disclosable in Carbon and Emery Counties. Two characteristics of the industry in the two counties contribute to this. First, few operating companies maintain offices in the area. Only three operating companies (NAICS 211) reported employment in the area during 2006. The three companies were all located in Carbon County. The Drunkards Wash Field in Carbon County, currently operated by ConocoPhillips, is sufficiently large compared to other fields in the area that employment is concentrated in one company. Second, since the coalbed methane industry is a relatively recent development in the area, with major production occurring over the past 15 years, a sizable oil and gas service industry has not developed in the two counties, resulting in employment for drilling and service companies not being disclosable.

**Table 8 Oil and Gas E&P Employment in Carbon and Emery Counties, 2001-2006**

	NAICS 211 Oil and Gas Extraction	NAICS 213111 Drilling Oil and Gas Wells	NAICS 213112 Support Activities for Oil and Gas Operations
Carbon County			
2001	ND	0	19
2002	ND	0	ND
2003	ND	ND	44
2004	ND	ND	32
2005	ND	ND	ND
2006	ND	ND	ND
Emery County			
2001	0	0	ND
2002	0	0	ND
2003	0	0	ND
2004	ND	0	ND
2005	0	0	ND
2006	0	0	ND
ND: Not disclosed to protect individual company data. Source: BLS, Quarterly Census of Employment and Wages			

In the absence of data from the government statistical agencies, operating companies with offices in the area were contacted to obtain employment information. Currently, three operating companies maintain offices in the two

**Table 9      Average Annual Wage by Industry in Carbon and Emery Counties, 2006**

	<b>Carbon County</b>	<b>Emery County</b>
<b>Private Employment</b>		
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	ND	ND
Mining (NAICS 21)	ND	ND
Utilities (NAICS 22)	\$81,156	ND
Construction (NAICS 23)	56,139	\$38,988
Manufacturing (NAICS 31-32)	44,177	31,440
Wholesale Trade (NAICS 42)	44,491	ND
Retail Trade (NAICS 44-45)	19,084	13,226
Transportation and Warehousing (NAICS 48-49)	35,915	33,142
Information (NAICS 51)	20,694	30,837
Finance and Insurance (NAICS 52)	28,541	21,634
Real Estate (NAICS 53)	17,345	3,521
Professional, Scientific and Technical Services (NAICS 54)	16,938	29,393
Management of Companies and Enterprises (NAICS 55)	45,990	ND
Administrative and Support (NAICS 56)	20,550	ND
Educational Services (NAICS 61)	ND	ND
Health Care (NAICS 62)	ND	ND
Arts, Entertainment and Recreation (NAICS 71)	11,612	0
Accommodation and Food Services (NAICS 72)	9,066	10,551
Other Services (NAICS 81)	22,390	36,379
<b>Government Employment</b>	30,401	26,789
<b>All Employment</b>	32,603	39,864
ND: Not disclosed to protect individual company information.		
Source: BLS, Quarterly Census of Employment and Wages		

## 4      **Economic Impacts**

While rising energy prices are translating into rising employment and wages in the producing areas, not all of the economic gains are occurring in the oil and gas industry. The total increase in local economic conditions due to oil and gas activity is greater than the direct gain in the industry. This is the “multiplier effect” often referred to in economics and is a result of local spending by the industry for goods and services and spending of wages by the industry’s employees. These additional economic benefits are known as the indirect and induced benefits.

In this study, economic impact is defined as the effect on employment and wages in the subject areas. Additional information on economic impact is available in Section 6 and in several listed references.

### **4.1      Carbon and Emery Counties**

The study area of Carbon and Emery Counties is an important component of the oil and gas E&P industry in Utah. In turn the industry is becoming more important to the local economy as additional wells are drilled, resulting in rising employment and



wages. Since the industry is a relatively recent development in the area, many of the service companies have not established a permanent presence there but work out of offices in the Uinta Basin. Employment in the two counties in the oil and gas E&P industry is estimated at 137 persons, or 1.1 percent of total employment during 2006 (Table 10). Due to the industry paying higher than average wages, total wages in the area are estimated at \$6.5 million, or 1.5 percent of total wages for 2006.

**Table 10 Direct Employment and Wages in the E&P Industry in Carbon and Emery Counties, 2006**

	Carbon and Emery Counties Total	
	Employment	Wages, \$1,000
Total	12,954	450,623
E&P Industry, Direct	137	6,546
E&P Industry, percent of total	1.1	1.5
Source: BLS, Quarterly Census of Employment and Wages; Utah Department of Workforce Services FirmFind; interviews with companies; author's estimates.		

In addition to the direct employment, additional jobs and wages due to spending by the industry and employees results in significant economic benefits to the study area. Other employment due to spending by the E&P industry is not limited to the mining industry but is distributed throughout different industries. Total employment in the two-county area due to the E&P industry, including direct, indirect, and induced, was estimated at 4.0 percent of total jobs in the area in 2006 (Table 11). When examining employment by industry, the oil and gas industry is shown to have significant effects on several other industries.

The E&P industry is responsible for 14.1 percent of total employment in the Construction industry in Carbon and Emery Counties. Additionally, 7.1 percent of the Real Estate employment in the area is due to oil and gas operations. There are an estimated 10 additional mining jobs in the area due to the oil and gas operations; these jobs are in addition to the estimated 137 jobs directly in the E&P industry. When considering both the direct jobs and the additional indirect and induced jobs in the mining industry, the oil and gas E&P industry is responsible for 8.1 percent of total mining jobs in the two counties, based on Utah Geological Survey estimates of coal mining employment in the area. The coal mining industry, which is much more labor intensive, is responsible for the bulk of the remaining mining jobs.

Although there are government employees located in the Coalbed Methane Area to regulate the oil and gas industry, these are not considered part of the Mining industry. The state Division of Oil, Gas and Mining has an office in Price and there are also local BLM and USFS employees dedicated to regulating the industry. For purposes of employment classification, these employees are considered to be

employed in NAICS 92 – Public Administration, which is included in the government employment in Table 11.

**Table 11      Employment Due to Oil and Gas E&P in Carbon and Emery Counties, 2006**

	Two-County Area Total Employment	Total Employment Due to Oil and Gas E&P	Oil and Gas E&P Employment, percent of total
<b>Private Employment</b>			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	ND	1	NA
Mining (NAICS 21)	1,804	147	8.1
Utilities (NAICS 22)	ND	44	NA
Construction (NAICS 23)	731	103	14.1
Manufacturing (NAICS 31-32)	435	5	1.2
Wholesale Trade (NAICS 42)	ND	10	2.1
Retail Trade (NAICS 44-45)	1,719	68	4.0
Transportation and Warehousing (NAICS 48-49)	435	16	3.7
Information (NAICS 51)	259	4	1.4
Finance and Insurance (NAICS 52)	244	6	2.3
Real Estate (NAICS 53)	65	5	7.1
Professional, Scientific and Technical Services (NAICS 54)	279	4	1.5
Management of Companies and Enterprises (NAICS 55)	ND	1	NA
Administrative and Support (NAICS 56)	ND	10	NA
Educational Services (NAICS 61)	ND	11	NA
Health Care (NAICS 62)	ND	25	NA
Arts, Entertainment and Recreation (NAICS 71)	71	3	3.6
Accommodation and Food Services (NAICS 72)	911	34	3.7
Other Services (NAICS 81)	485	27	5.5
Households	NA	2	NA
<b>Government Employment</b>	2,801	NA	NA
<b>All Employment</b>	12,954	524	4.0
ND: Nondisclosable. Data are included in the totals. NA: Not applicable.			
Source: BLS, Quarterly Census of Employment and Wages; author's calculations.			

Oil and gas E&P accounts for just under five percent of all wages paid in the two counties (Table 12). The industry is responsible for a higher percentage of wages than employment due to oil and gas E&P paying above average wages. The oil and gas industry is responsible for 6.6 percent of an estimated \$111 million in wages in the Mining (NAICS 21) industry in the two counties. Both the Construction (NAICS 23) and Real Estate (NAICS 53) industries have more than 10 percent of their total wages due to spending by the oil and gas industry.

**Table 12 Wages Due to Oil and Gas E&P in Carbon and Emery Counties, 2006**

	Two-County Area Total Wages, \$1,000	Total Wages Due to Oil and Gas E&P, \$1,000	Oil and Gas E&P Wages, percent of total
<b>Private Employment</b>			
Agriculture, Forestry, Fishing and Hunting (NAICS 11)	ND	9	NA
Mining (NAICS 21)	111,000	7,359	6.6
Utilities (NAICS 22)	ND	3,891	NA
Construction (NAICS 23)	35,249	4,241	12.0
Manufacturing (NAICS 31-32)	18,992	260	1.4
Wholesale Trade (NAICS 42)	ND	458	2.3
Retail Trade (NAICS 44-45)	30,198	1,542	5.1
Transportation and Warehousing (NAICS 48-49)	15,243	945	6.2
Information (NAICS 51)	6,713	191	2.8
Finance and Insurance (NAICS 52)	6,599	218	3.3
Real Estate (NAICS 53)	1,044	117	11.2
Professional, Scientific and Technical Services (NAICS 54)	5,450	207	3.8
Management of Companies and Enterprises (NAICS 55)	ND	56	NA
Administrative and Support (NAICS 56)	ND	214	NA
Educational Services (NAICS 61)	ND	233	NA
Health Care (NAICS 62)	ND	924	NA
Arts, Entertainment and Recreation (NAICS 71)	825	44	5.4
Accommodation and Food Services (NAICS 72)	9,660	530	5.5
Other Services (NAICS 81)	12,846	678	5.3
Households	NA	36	NA
<b>Government Employment</b>	82,266	NA	NA
<b>All Employment</b>	450,623	22,151	4.9
ND: Not disclosed. NA: Not applicable.			
Source: BLS, Quarterly Census of Employment and Wages; author's calculations.			

## 5 Fiscal Impacts

The oil and gas industry also has fiscal impacts on the local areas. Fiscal impacts refer to impacts on government finances and tax collections. The oil and gas industry is subject to the tax laws common to all businesses. There are also impacts unique to the industry. Production on federal land is subject to a royalty payment under the Mineral Lands Leasing Act of 1920. This royalty is paid to the Minerals Management Service, an agency within the U.S. Department of Interior. A portion of the federal mineral royalties is returned to the state of origin, generally one-half. Royalties from production on Indian lands are returned to the appropriate tribe, not to the state government. Since a large portion of the crude oil production in Utah occurs on Indian lands, especially in Duchesne and San Juan Counties, the amount of crude oil royalty returned to the state government is significantly less than one-half of the amount paid to the Minerals Management Service. The states have full discretion as to the distribution of federal mineral royalties as long as priority is given to areas with economic and/or social impacts from leasing activities. The



Minerals Management Service does not release federal mineral royalty data at the county level, but statewide data are available.

Federal mineral royalties due to oil and gas production in Utah have increased dramatically from \$91 million in 2001 to nearly \$300 million in 2006, a 228 percent rise (Table 13). Oil and gas production accounted for 91.3 percent of the royalties paid for mineral production on federal land in Utah during 2006. There was also an additional \$103 million paid in bonuses and rents on federal mineral leases. These are fees associated with awarding federal mineral leases and maintaining the leases until production is initiated. Table 13 includes royalties due to oil and gas production, but does not include bonus or rent payments for federal oil and gas leases. Of the nearly \$300 million paid in federal mineral royalties by the oil and gas industry in Utah, \$109 million was returned to the state government.

**Table 13 Federal Mineral Royalty Payments and Disbursements for Utah, 2001-2006**

	Oil		Natural Gas		Total	
	Royalties	Disbursements	Royalties	Disbursements	Royalties	Disbursements
2001	\$32,799,794	\$4,392,667	\$58,553,527	\$26,210,621	\$91,353,321	\$30,603,288
2002	26,028,911	3,493,794	37,653,050	11,921,373	63,681,961	15,415,167
2003	37,462,357	5,575,810	55,369,036	26,040,706	92,831,293	31,616,515
2004	45,743,590	7,235,629	87,075,857	38,228,494	132,819,447	45,464,122
2005	66,900,212	10,405,687	118,132,687	53,647,636	185,032,900	64,053,323
2006	106,457,298	21,866,066	193,416,183	87,551,457	299,873,481	109,417,522
Note: Years are federal fiscal years. Natural gas includes natural gas liquids from gas processing plants.						
Source: Minerals Management Service						

In Utah, federal mineral royalties are distributed to several different accounts according to state law (Table 14). The largest recipients of federal mineral royalties in Utah are the Permanent Community Impact Fund and the Department of Transportation. The funds distributed to the Department of Transportation are then distributed to local governments to fund local highways in proportion to the amount of mineral lease money generated by each county. The Permanent Community Impact Fund makes loans and grants to state agencies and subdivisions of state government impacted by mineral resource development. Unlike the funds administered by the Department of Transportation, which are distributed in proportion to royalties generated in the county, the Permanent Community Impact Fund is distributed by a state-appointed board in response to proposals submitted by state agencies and local governments. Therefore, the distribution of funds by the Permanent Community Impact Fund to the various counties may vary from the amount of royalty generated. The payments in lieu of taxes cited in Table 14 are not the payments in lieu of taxes made by the federal government for federal land in Utah but are payments made by the state government to counties for lands

controlled by the School and Institutional Trust Lands Administration, state Division of Parks and Recreation and the state Division of Wildlife Resources.

**Table 14      Distribution of Federal Mineral Royalties in Utah**

	Percent
Permanent Community Impact Fund	32.50
State Board of Education	2.25
Utah Geological Survey	2.25
Water Research Laboratory	2.25
Department of Transportation	40.00
Department of Community and Culture	5.00
Payments in Lieu of Taxes	52 cents per acre
Permanent Community Impact Fund	Remainder
Note: The amount paid for Payments in Lieu of Taxes has been adjusted annually since 1994 according to the Consumer Price Index.	
Source: Utah State Code, Title 59, Chapter 21.	

The School and Institutional Trust Lands Administration (SITLA) controls mineral rights on approximately 4.4 million acres in Utah. These lands are held in trust for the public schools in Utah and 11 other beneficiaries. They were established at statehood and through land exchanges with the federal government. During 2006, royalties paid for oil and gas extraction on SITLA lands totaled \$82.7 million. This was 51.0 percent of total SITLA revenue for 2006. These funds are not returned to the county of origin, but are placed in a permanent fund managed by the state treasurer on behalf of the public schools or distributed to the appropriate beneficiary as mandated. Dividends and interest from the Public School Fund are distributed annually to all Utah public schools based on an established formula.

In addition to royalties, there is an Oil and Gas Severance Tax in Utah and an Oil and Gas Conservation Fee that are levied on all production in the state. Revenue from the Oil and Gas Severance Tax is placed in the state general fund and the tax rate varies from 3 to 5 percent of the sales price. The Oil and Gas Conservation Fee funds the state Division of Oil, Gas and Mining. The fee is imposed at a rate of 0.2 percent of the value of production.

Both the Oil and Gas Severance Tax and the Oil and Gas Conservation Fee have significantly increased in recent years (Table 15). The Oil and Gas Severance Tax increased by 82 percent from 2001 to 2006, while the Oil and Gas Conservation Fee increased by 102 percent. The drop from 2001 to 2002 was due to the decline of the wellhead price of natural gas produced in Utah from \$3.52 per MCF to \$1.99 per MCF. These data reflect statewide oil and gas operations and are not specific to Carbon and Emery Counties.

**Table 15 State Tax Collections Related to Oil and Gas Production, 2001-2006**

	Oil and Gas Severance Tax	Oil and Gas Conservation Fee
2001	\$39,357,798	\$2,748,318
2002	18,893,082	1,710,219
2003	26,745,279	1,943,755
2004	36,659,808	2,696,250
2005	53,484,320	3,631,963
2006	71,513,869	5,560,449
Note: Years are state fiscal years.		
Source: Utah State Tax Commission		

### 5.1 Carbon and Emery Counties

The largest direct fiscal impacts on Carbon and Emery Counties due to oil and gas operations in the area are property taxes paid by the operating companies and federal mineral royalties distributed to the local governments by the Utah Department of Transportation. The Utah State Tax Commission centrally assesses oil and gas properties using a net present value approach applied to future production. The local county treasurers bill and collect the taxes. Property taxes are levied by numerous units of local government, including county and city governments, school districts, and special service districts.

Property taxes paid on oil and gas properties have become a significant portion of total property taxes in the two counties (Table 16). During 2006, the oil and gas industry paid nearly 25 percent of total property taxes in the two counties. Over one-third of the property tax paid in Carbon County during 2006 was due to oil and gas production and just over one-tenth of the property tax in Emery County was due to oil and gas. The two large power plants located in Emery County mean that 65 percent of property taxes in Emery County are paid by the utilities industry. Table 16 refers to all property taxes paid to various government entities in the two counties, not just the county governments. As the price of natural gas has increased in recent years, the net present value of future production has increased. This, coupled with rising production, has resulted in the amount of property taxes paid by the oil and gas industry in the two counties increasing by over 25 times over the past 10 years, not adjusting for inflation. Oil and gas property taxes have been rising faster in Emery County than in Carbon County, reflecting rising natural gas production in the county. Property taxes paid on oil and gas production increased by 4,622 percent in Emery County from 1997 to 2006, and by 2,155 percent in Carbon County. Given the rising production and expected continuation of current energy prices, the property taxes paid by the oil and gas production industry in the two counties should continue to rise into the future.



**Table 16 Oil and Gas Property Tax Payments in Carbon and Emery Counties, 1997-2006**

	Carbon County		Emery County		Two-County Area Total	
	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax	Oil & Gas Property Tax	Percent of Total Property Tax
1997	\$359,255	3.0	\$44,722	0.2	\$403,977	1.2
1998	653,781	4.9	56,297	0.3	710,078	2.2
1999	1,233,733	10.2	144,661	0.7	1,378,394	4.4
2000	3,316,312	22.2	237,473	1.2	3,553,785	10.4
2001	4,779,864	28.0	547,486	2.8	5,327,350	14.4
2002	4,290,845	26.5	755,816	4.1	5,046,661	14.6
2003	4,567,518	24.5	985,587	5.5	5,553,105	15.1
2004	6,576,519	32.8	1,496,054	8.2	8,072,573	21.1
2005	7,418,552	38.7	1,836,886	10.2	9,255,438	24.9
2006	8,101,170	35.8	2,111,766	10.9	10,212,936	24.3

Source: Utah State Tax Commission, Property Tax Division Annual Reports

In terms of property taxes paid, the oil and gas industry has a greater fiscal impact on Carbon and Emery Counties than does the coal mining industry. In 2006, property taxes charged against coal mines in the two counties totaled \$3,483,001, or 34.1 percent of the amount charged against oil and gas wells.

The funds generated through federal mineral royalties that are returned to the two counties through the Utah Department of Transportation are also a significant source of revenue for the local governments. These funds actually exceed the amount of property tax paid by the oil and gas industry. During 2006, Carbon and Emery Counties collectively received \$13.7 million dollars in federal mineral royalties returned to them by the Department of Transportation (Table 17). This was a 70 percent increase over the amount returned in 2001.

**Table 17 Federal Mineral Royalties Returned by UDOT to Carbon and Emery Counties, 2001-2006**

	Carbon County	Emery County	Two-County Area Total
2001	\$5,140,732	\$2,900,800	\$8,041,532
2002	2,260,889	1,703,743	3,964,632
2003	3,233,674	2,208,352	5,442,026
2004	5,421,384	3,761,439	9,182,823
2005	7,050,220	4,082,628	11,132,848
2006	10,145,446	3,566,833	13,712,279

Note: Years are state fiscal years.  
Source: Utah Department of Transportation

Table 17 includes data on all royalties from federal mineral leases in Utah, not just oil and gas operations. There is significant coal production from federal leases in the two counties and a major portion of the federal mineral royalties returned by UDOT may be due to coal production. Almost all federal mineral royalties in the two counties are the result of energy production, whether coal, oil or natural gas. The rise in energy prices in recent years, coupled with the resultant production increases, has had a noticeable fiscal impact on the two counties.

Royalties paid to SITLA due to production of oil and gas in Carbon and Emery Counties dropped slightly from 2005 to 2006 (Table 18).

**Table 18 Royalties Paid for Production on SITLA Lands in Carbon and Emery Counties, 2005-2006**

	Carbon County	Emery County	Two-County Area Total
2005	\$21,077,378	\$5,775,864	\$26,853,242
2006	19,786,589	5,355,106	25,141,695
Note: Years are state fiscal years.			
Source: School and Institutional Trust Lands Administration			

Most of the Drunkards Wash Field is on land controlled by SITLA and SITLA receives royalties for oil and gas production. Previous, the Drunkards Wash area was administered by the BLM but was acquired by SITLA in 1998 as part of a land exchange agreement with the federal government. Since there were preexisting federal leases in the area, the agreement stated the two county governments would not lose federal mineral royalties as a result of the land exchange. Originally, SITLA remitted one-half of the royalties received from the Drunkards Wash Field (after deducting a 3 percent administrative fee) to the state Mineral Lease Account. This account also receives federal mineral royalties returned to the state by the federal government and the funds deposited by SITLA were mingled with federal mineral royalties and distributed according to state law (Table 14). The other half of the royalties from the Drunkards Wash Field are retained by SITLA for disbursement to the various beneficiaries.

As of March 15, 2007, Utah state law changed and royalties from the Drunkards Wash Field previously deposited in the state Mineral Lease Account are now returned by the state Division of Finance to the county of origin. Between March 15, 2007 and the end of September 2007, \$2.3 million had accrued with the state Division of Finance and were awaiting distribution to the two county governments.

Fiscal effects also arise from the direct, indirect and induced impacts of the oil and gas E&P industry. State personal income taxes as a result of oil and gas E&P activities in the two counties are estimated at \$681,000 for 2006 (Table 19).

**Table 19      Personal State Income Taxes Due to Oil and Gas E&P in Carbon and Emery Counties**

	Two-County Area Total
Total Wages due to Oil and Gas E&P, \$1,000	22,151
Personal State Income Taxes, \$1,000	681
Source: Author's Calculations. Details of the estimation are in Section 6.	

## 6      Technical Notes and Methodology

Industries are classified by economists according to the North American Industry Classification System (NAICS), which was developed by the Office of Management and Budget in cooperation with other federal agencies and foreign governments (Office of Management and Budget, 2007). The NAICS codes replaced the Standard Industrial Classification (SIC) Codes that had been used since the 1930s. This change was prompted by structural changes in the U.S. economy, with the services sector becoming a much larger portion of the economy and more complex than when the SIC codes were developed. In the switch, the 10 major industrial sectors under the SIC codes were replaced with 20 major sectors under the NAICS codes. Many of the industrial sectors under the SIC codes were split among two or more of the redefined NAICS sectors, making comparisons difficult. The NAICS codes better explain the structure of the current economy but make time series data difficult to compile.

Under the NAICS system, 20 major industrial categories are further subdivided as needed. To demonstrate the level of detail obtained, Table 20 presents the divisions of the Mining (NAICS 21) sector. The Mining sector is divided into a total of 28 different industries. The other 19 industrial sectors are similarly subdivided.

Other local businesses and industries benefit from E&P activities. Examples of these are seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and electric utilities. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. These types of effects are referred to as the indirect and induced impacts. The indirect and induced impacts can be calculated from the value of transactions between the E&P industry and these other businesses using input-output economic models.



**Table 20 NAICS Codes Related to the Mining Industry**

NAICS Code	Industry
21	Mining, Quarrying, and Oil and Gas Extraction
211	Oil and Gas Extraction
2111	Oil and Gas Extraction
21111	Oil and Gas Extraction
211111	Crude Petroleum and Natural Gas Extraction
211112	Natural Gas Liquid Extraction
212	Mining (except Oil and Gas)
2121	Coal Mining
21211	Coal Mining
212111	Bituminous Coal and Lignite Surface Mining
212112	Bituminous Coal Underground Mining
212113	Anthracite Mining
2122	Metal Ore Mining
21221	Iron Ore Mining
212210	Iron Ore Mining
21222	Gold and Silver Ore Mining
212221	Gold Ore Mining
212222	Silver Ore Mining
21223	Copper, Nickel, Lead and Zinc Mining
212231	Lead Ore and Zinc Ore Mining
212234	Copper Ore and Nickel Ore Mining
21229	Other Metal Ore Mining
212291	Uranium-Radium-Vanadium Ore Mining
212299	All Other Metal Ore Mining
2123	Nonmetallic Mineral Mining and Quarrying
21231	Stone Mining and Quarrying
212311	Dimension Stone Mining and Quarrying
212312	Crushed and Broken Limestone Mining and Quarrying
212313	Crushed and Broken Granite Mining and Quarrying
212319	Other Crushed and Broken Stone Mining and Quarrying
21232	Sand, Gravel, Clay and Ceramic and Refractory Minerals Mining and Quarrying
212321	Construction Sand and Gravel Mining
212322	Industrial Sand and Gravel Mining
212324	Kaoline and Ball Clay Mining
212325	Clay and Ceramic and Refractory Minerals Mining
21239	Other Nonmetallic Mineral Mining and Quarrying
212391	Potash, Soda, and Borate Mineral Mining
212392	Phosphate Rock Mining
212393	Other Chemical and Fertilizer Mineral Mining
212399	All Other Nonmetallic Mineral Mining
213	Support Activities for Mining
2131	Support Activities for Mining
21311	Support Activities for Mining
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
213113	Support Activities for Coal Mining
213114	Support Activities for Metal Mining
213115	Support Activities for Nonmetallic Minerals (except Fuels) Mining

## 6.1 NAICS Codes Related to Oil and Gas Production

There are three classifications directly related to the oil and gas exploration and production industry. These are NAICS 211 – Oil and Gas Extraction, NAICS 213111 – Drilling Oil and Gas Wells, and NAICS 213112 – Support Activities for Oil and Gas Operations. These three classifications cover the operating companies, drilling companies, and service companies, respectively. For this study, we consider them collectively as the oil and gas E&P industry. The definitions listed are those developed by the Office of Management and Budget.

NAICS 211 – Oil and Gas Extraction Industries in the Oil and Gas Extraction subsector operate and/or develop oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operation of separators, emulsion breakers, desilting equipment and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. The subsector includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids.

Establishments in this subsector include those that operate oil and gas wells on their own account and for others on a contract or fee basis. Establishments primarily engaged in providing support services, on a fee or contract basis, required for the drilling or operation of oil and gas wells (except geophysical surveying and mapping, mine site preparation, and construction of oil/gas pipelines) are classified in Subsector 213, Support Activities for Mining.

NAICS 213111 – Drilling Oil and Gas Wells This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. This industry includes contractors that specialize in spudding in, drilling in, redrilling, and directional drilling.

NAICS 213112 – Support Activities for Oil and Gas Operations This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related activities). Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars; well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells, shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells.

## 6.2 Economic Impact Modeling

Economic impacts on an economy arise from exogenous sources or activities that inject new funds into the economy. Examples include products that are exported and new construction funding. It is important for outside funds to be injected into a regional economy for economic impacts to occur. If an activity is financed by funds from inside a regional economy, known as residentiary spending, then the funds are diverted from one industrial sector to another and there is no net multiplier effect or economic impact. Crude oil and natural gas from the producing areas in Utah are exported to refineries and markets in other portions of the country. Exporting oil and gas results in an inflow of funds, which creates a positive economic impact on the area.

In this study, economic impact is used to mean the impact of oil and gas E&P activities on the amount of employment and wages paid in the various producing regions in Utah. Many similar studies present the total economic output of an activity as the economic impact; this is the sum of all transactions in a supply chain and can be much larger than the value of the final good or service provided to the end consumer. Similarly, many authors apply economic output multipliers to all spending related to an activity, with no distinction between export-based and residentiary spending. The result is often termed “economic contribution” and presented as economic impact. As with all economic output calculations, the result is much larger than the value of the final product delivered to an end consumer.

The oil and gas exploration and production industry has a direct impact on the local economy through employment and wages paid. In addition, there are additional indirect and induced impacts. Indirect impacts result from local spending by the E&P industry and induced impacts arise from employees of the E&P industry spending their earnings.

Examples of indirect impacts are employment and wages at seismic companies, regulatory and environmental consulting firms, consulting geologists, trenching and dirtwork, and utilities providing electricity. Other benefits accrue to local hotels and restaurants as a result of spending by visiting workers. The indirect and induced impacts can be calculated from the value of transactions between the E&P industry and these other businesses.

The RIMS II input-output model developed by the Bureau of Economic Analysis was used to determine the indirect and induced economic impacts of the oil and gas exploration and production industry in Carbon and Emery Counties. The RIMS II model is based on an accounting framework called an input-output table. From each industry, an input-output table shows the industrial distribution of inputs purchased and outputs sold. The Bureau of Economic Analysis has developed a



national input-output table (Bureau of Economic Analysis, 1997). To develop region-specific input-output tables, the national input-output table is modified using regional economic data. The producer portion of the input-output table is modified using location quotients at the six-digit NAICS level based on personal income data for service industries and wage and salary data for nonservice industries. Household data is modified to account for commuting across regional boundaries and savings and taxes. Once the national input-output table is regionalized, the multipliers are estimated through the use of matrix algebra. The RIMS II model estimates the employment and wage impacts by major NAICS industry.

Data on spending by the E&P industry in the two counties was obtained via a survey of operating, drilling and service companies operating in the area. Personnel with the Bureau of Economic and Business Research at the University of Utah worked with the Independent Petroleum Association of the Mountain States (IPAMS) to develop survey forms with input from several representatives of the petroleum industry. IPAMS distributed the survey forms to operating, drilling and service companies operating in Carbon and Emery Counties and the forms were returned to the Bureau of Economic and Business Research. Data from returned survey forms was totaled by spending category. Using data on total production of oil and gas, number of wells spudded and employment reported by government agencies, the total spending reported by responding companies was expanded to total industry spending in the region. The multipliers from the RIMS II model were then applied to the total spending by category to determine the indirect and induced employment and wages. Trade margins were applied to the Retail Trade, Wholesale Trade, and Transportation industries.

State income tax impacts were estimated by calculating the ratio of the Utah income tax liability for Carbon and Emery Counties to the sum of the total earnings by place of work for the two counties as determined by the Bureau of Economic Analysis. The average of this ratio for the years 2003 through 2005 was 4.02 percent. This ratio was then applied to the total estimated earnings due to oil and gas E&P in Carbon and Emery Counties of \$22.2 million to estimate the state personal income tax.

## 7 References

- Bureau of Economic Analysis. 2007.** Local Area Personal Income. <http://www.bea.gov/regional/reis/>. Downloaded Nov. 6, 2007.
- Bureau of Labor Statistics. 2007.** Quarterly Census of Employment and Wages. <http://stats.bls.gov/cew/home.htm>. Downloaded Sept. 9, 2007.

- Energy Information Administration. 2007.** *Short-Term Energy Outlook September 2007.* <http://www.eia.doe.gov/emeu/steo/pub/contents.html>. Downloaded Sept. 11, 2007.
- Isard, W., I.J. Azis, M. P., Drennan, R. E. Miller, S. Saltzman, and E. Throbecke. 1998.** *Methods of Interregional and Regional Analysis.* Ashgate Publishing Limited. 490 pp.
- Minerals Management Service. 2007.** MRM Statistical Information. <http://www.mrm.mms.gov/MRMWebStats/default.aspx>. Downloaded Oct. 3, 2007.
- Montgomery, S. L., D. E. Tabet., and C. E. Barker. 2001.** Upper Cretaceous Ferron Sandstone: Major Coalbed Methane Play in Central Utah. *AAPG Bulletin*. vol. 85, no. 2, February 2001. pp. 199-219.
- Office of Management and Budget. 2007.** *North American Industry Classification System.* 1390 pp.
- Schaffer, W. A. 1999.** *Regional Impact Models.* West Virginia University Regional Research Institute. <http://www.rri.wvu.edu/WebBook/Schaffer/index.html>. Accessed July 18, 2007. 80 pp.
- Tabet, D. E., and J. C. Quick. 2003.** Frontier Area for Coalbed-Gas Exploration in Utah. *Survey Notes.* Utah Geological Survey. vol. 34, no. 2. April 2003. pp. 10-11.
- U.S. Bureau of the Census. 2007.** Subcounty Population Data Sets. <http://www.census.gov/popest/cities/SUB-EST2006-states.html>. Downloaded Sept. 12, 2007.
- Utah Department of Transportation. 2007.** Mineral Lease Distributions. <http://www.dot.utah.gov/main/f?p=100:pg:11808295696151236794:::1:T,V:135,>. Downloaded Oct. 4, 2007.
- Utah Division of Oil, Gas and Mining. 2007.** Production Reports. <http://oilgas.ogm.utah.gov/Publications/Publications.htm>. Downloaded Sept. 12, 2007.
- Utah Geological Survey. 2006.** *Utah! 100 Years of Exploration and Still the Place to Find Oil and Gas.* Public Information Series 71. nonpaginated.
- Utah Governor's Office of Planning and Budget. 2000.** *Federal Land Payments in Utah.* <http://governor.utah.gov/dea/Publications/Report.pdf>. Downloaded Sept. 11, 2007.

**Utah State Tax Commission. 2007.** Revenue Reports (TC-23).  
<http://www.tax.utah.gov/esu/revenue/index.html>. Downloaded Nov. 5, 2007.

**Utah State Tax Commission. 2007.** Utah Income and Corporate Tax Statistics.  
<http://www.tax.utah.gov/esu/income/index.html>. Downloaded Nov. 2, 2007.



## **ATTACHMENT E**

ATTACHMENT E

**Review of the Socioeconomic Analysis  
in the Draft Environmental Impact Statement  
prepared by the USDI-Bureau of Land  
Management Richfield Field Office**

1 October 2006

Prepared by  
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Steve Burr, Ph.D. (recreation)  
Jody Gale (county liaison)  
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Doug Reiter, (recreation)



Department of Sociology, Social  
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Department of Economics  
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Tourism

## **ATTACHMENT F**



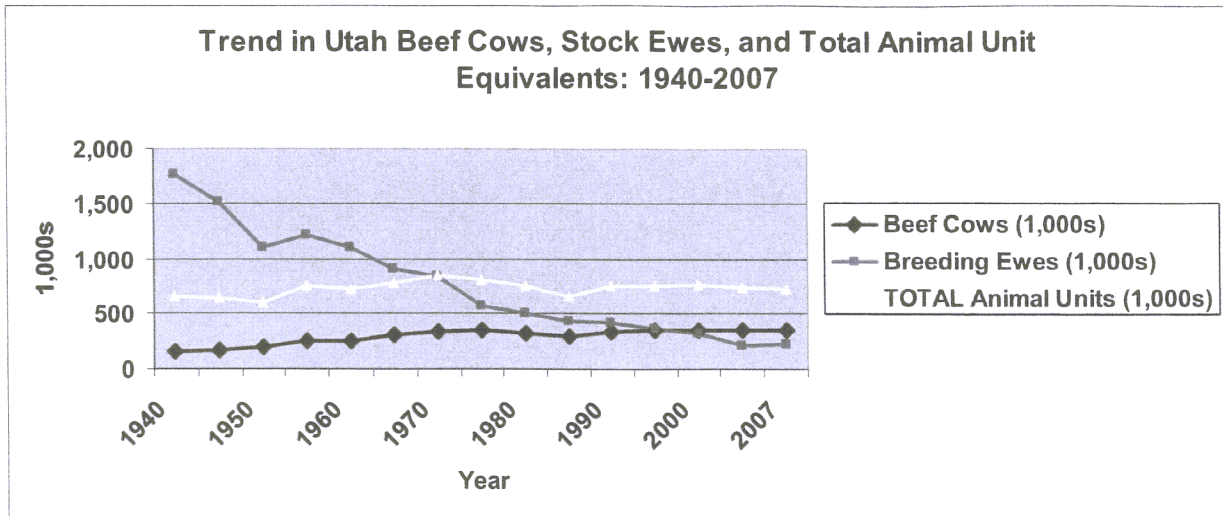
## ATTACHMENT F

### *Livestock Industry Issues*

#### *Beef cattle and stock sheep in Utah, 1940-2007*

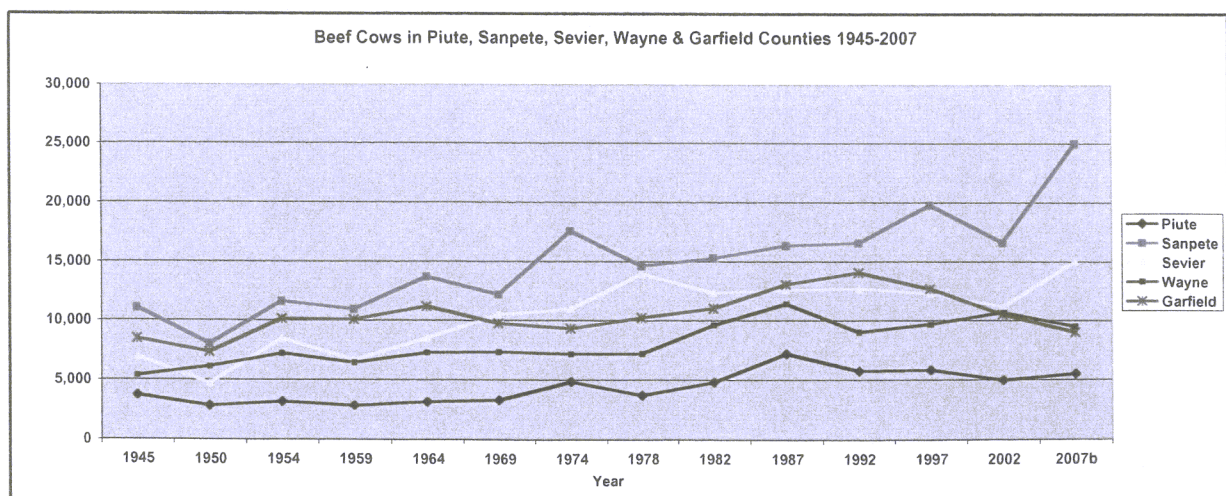
1. The number of beef cows (breeding herd) has more than doubled in Utah over the past 67 years while the number of ewes (breeding herd) has declined to only about 12% of what it was in 1940.
2. The decline in the sheep industry reflects the decline in demand for wool, consumer preference for lamb, more restrictive predator control policies, and difficulties in obtaining labor.
3. Sheep and lamb losses to predators have declined in Utah over the past 20 years. This may be a result in use of guard dogs and other kinds of improved management.
4. Many federal grazing permits have been transferred from sheep to cattle permits and total animal unit equivalents have varied some over the past 67 years.
5. Animal units equivalents (AU's) have declined by about 20% since the 1940's based on cow and ewe numbers. This decline may be more related to an increase in animal size over the period than to an actual decrease in capacity.
6. The decline in the sheep industry and fire control policies coincide with the gradual increase in woody plant domination on Utah rangelands.

<b>Year</b>	<b>Beef Cows (1,000s)</b>	<b>Breeding Ewes (1,000s)</b>	<b>TOTAL Animal Units (1,000s)</b>
1940	155	1,762	662
1945	172	1,516	647
1950	194	1,099	608
1955	256	1,223	757
1960	252	1,099	724
1965	301	903	783
1970	342	846	853
1975	349	575	813
1980	325	506	751
1985	289	432	664
1990	333	420	750
1995	345	357	761
2000	355	321	774
2005	347	208	736
2007	344	220	732

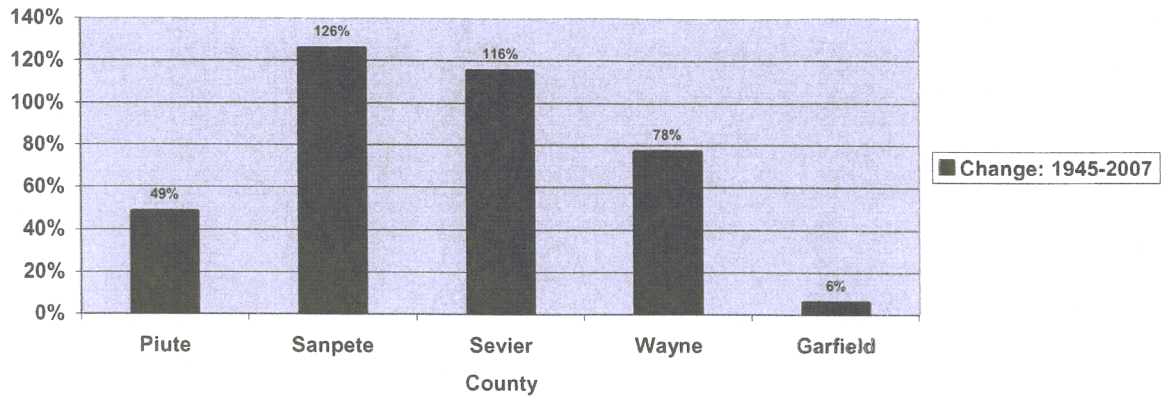


*Number of Beef Cows and Ewes in Piute, Sanpete, Sevier, Wayne Counties and part of Garfield County, 1945-2007*

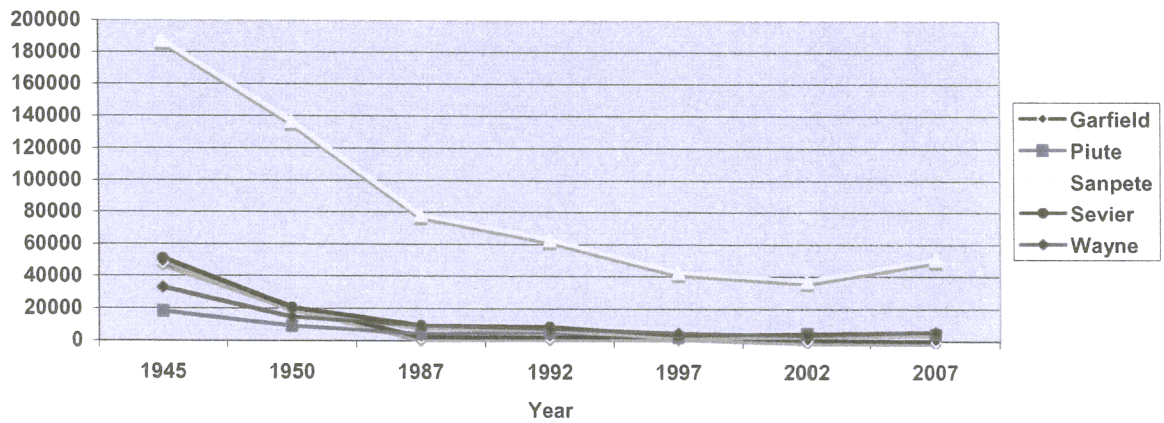
1. Beef cow numbers have increased modestly in some Utah counties, perhaps due to improved production techniques. However, numbers have declined in some urban counties such as Davis and Washington counties.
2. All five counties included in the Richfield Field Office Planning Area have experienced at least a modest increase in beef cows over the period. Sanpete and Sevier Counties, counties with greater proportions of private land than Wayne and Garfield Counties, have experienced greater than 100% increases in beef cow numbers. Piute County has experienced a 49% increase in beef cow numbers since 1945 although it is a small county less than half the size as the other counties. However, there is a greater proportion of private land in Piute County than in Wayne or Garfield Counties. Sanpete County has traditionally been a major sheep producing county. However, resident sheep numbers have declined dramatically from around 188,000 ewes in 1945 to around 51,000 ewes in 2007.



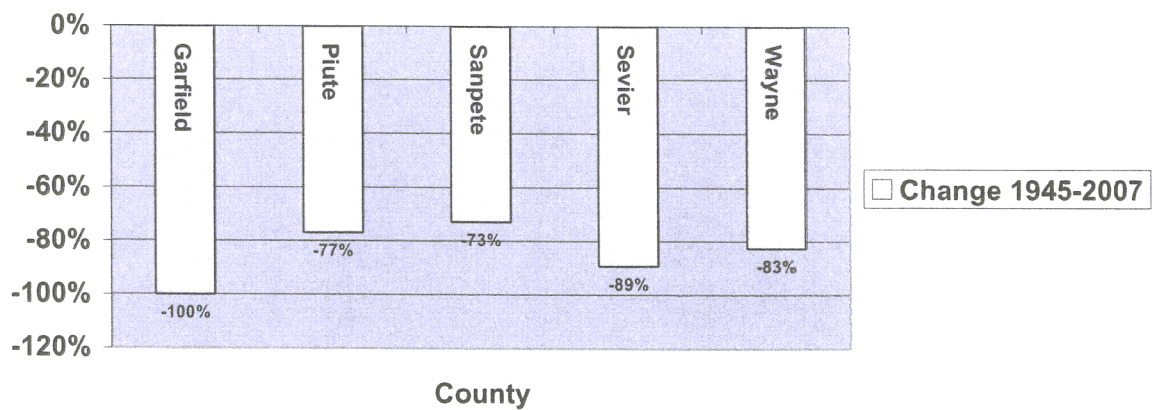
**Increase in Beef Cows: 1945-2007**



**Decline in Ewe Numbers in Richfield Field Office Planning Area: 1945-2007**



**Change in Breeding Ewe Number in Richfield Field Office Planning Area:  
1945-2007**





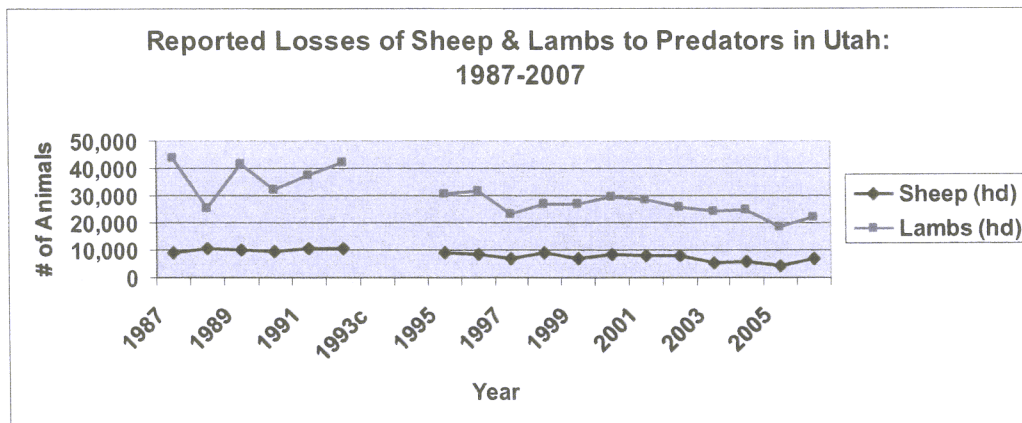
## Reported Losses of Sheep and Lambs to Predators 1987-2007

Year	Sheep (hd)	Lambs (hd)
1987	9,200	43,800
1988	10,500	25,200
1989	10,200	41,600
1990	9,300	32,200
1991	10,300	37,600
1992	10,500	42,200
1993 <sup>c</sup>		
1994 <sup>c</sup>		
1995	9,100	30,700
1996	8,400	31,400
1997	6,700	23,300
1998	8,700	27,100
1999	6,600	26,700
2000	8,200	29,300
2001	7,900	28,300
2002	8,100	25,700
2003	5,400	24,100
2004	5,700	24,600
2005	4,300	18,500
2006	6,700	22,300

<sup>a</sup>Utah Agricultural Statistics (1988-2007)

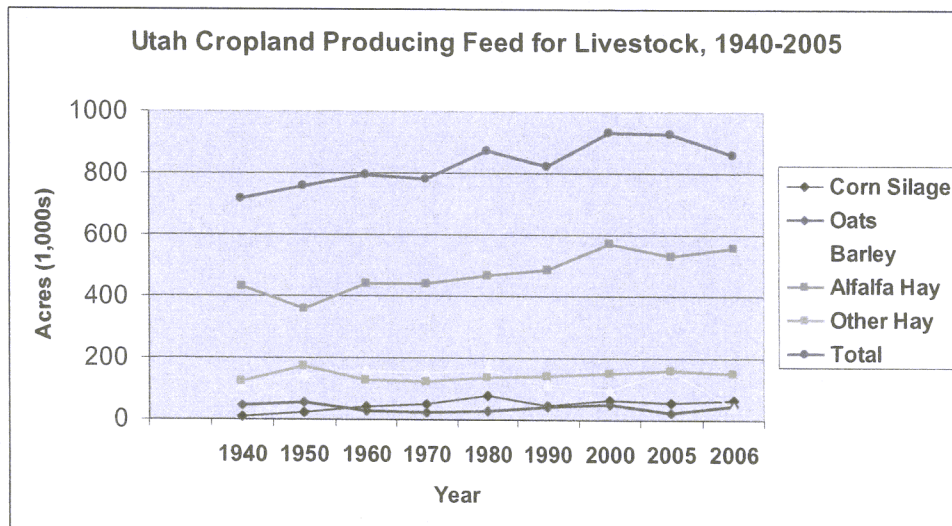
<sup>b</sup>Losses not reported for Bobcat and Fox until 1995

<sup>c</sup>Losses not reported in 1993 and 1994



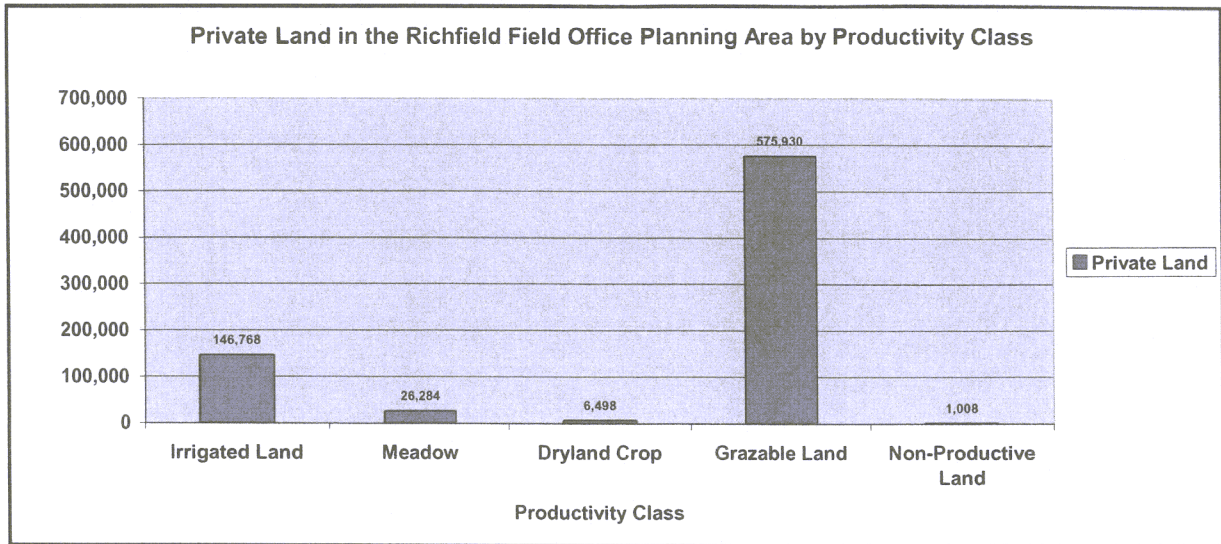
### *Utah Cropland Producing Feed for Livestock, 1940-2005*

1. Acreage devoted to production of grains and forages for livestock has increased from 718,000 acres to 860,000 acres in Utah since 1940. Changes in irrigation technology could have contributed to this 20% increase in acreage. Total harvested cropland reported in the 2002 Census of Agriculture was 961,037 ac.
2. Corn silage acreage has increased, oat acreage has remained the same, barley acreage has declined, and alfalfa and other hay acreage have increased.
3. These changes may also reflect changes in irrigation technology.
4. The County Assessors have identified about 20,477 acres of arable private land in Piute County (about 38% of the private land), near 62,700 acres (18% of the private land) in Sanpete County, around 37,000 acres of arable private land in Sevier County (20% of the private land), about 11,000 acres in Wayne County (37% of the private land) and a small amount of arable land along the East Fork of the Sevier River in Garfield County. The County Assessors consider most of the private land (average 76%) in these counties to be grazable land (low productive capacity).



Year	Corn Silage	Oats	Barley	Alfalfa Hay	Other Hay	Total
1940	10	46	109	431	122	718
1950	21	56	146	361	173	757
1960	41	29	160	439	127	796
1970	49	24	148	441	122	784
1980	79	26	162	470	135	872
1990	45	40	115	485	140	825
2000	64	50	95	575	150	934
2005	55	22	160	530	160	927
2006	65	45	40	560	150	860

<sup>a</sup>Source: Utah State Department of Agriculture (1984-2007)

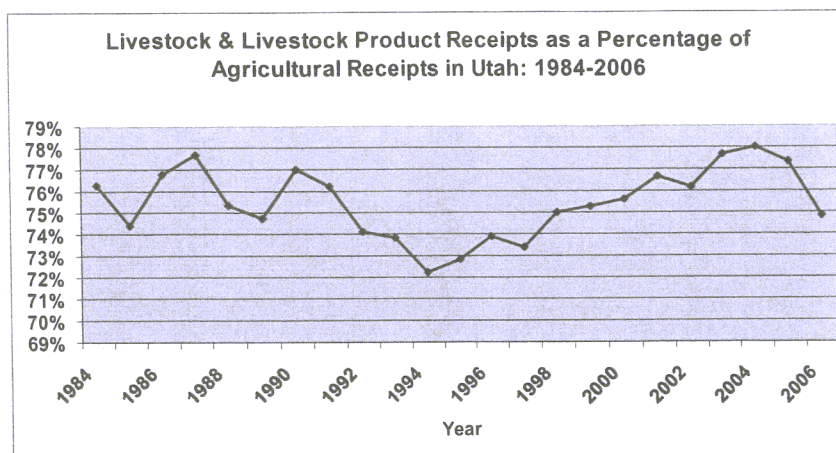




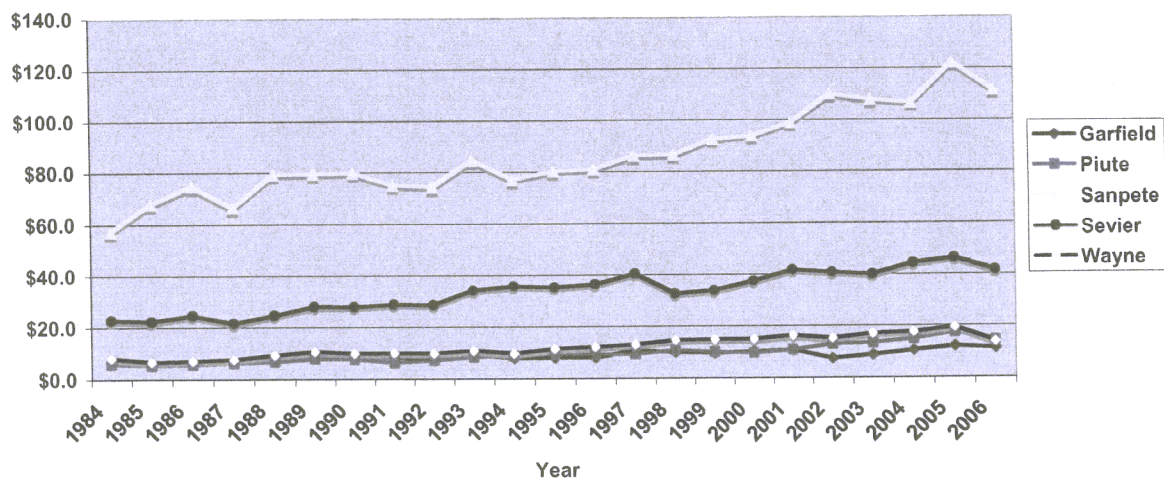
*Receipts related to the livestock industry in Piute, Sanpete, Sevier, Wayne and Garfield Counties 1984-2006.*

1. Receipts from Utah livestock and livestock products have doubled in nominal terms since 1984.
2. Receipts (nominal) of livestock and livestock products represent an average of 75% (range 72%-79%) of all agricultural receipts in Utah over the last 23 years.
3. Piute, Sanpete, Sevier, Wayne and Garfield Counties livestock and livestock product receipts (nominal) have increased from around \$6 million annually in Piute County, \$57.4 million in Sanpete County, \$22 million in Sevier County, \$8.1 million in Wayne County and \$6.7 million in Garfield County to about \$14.5 million, \$111.5 million, \$41.7 million, \$13.8 million and \$11.4 million in Piute, Sanpete, Sevier, Wayne and Garfield Counties, respectively, over the past 20-23 years. This represents an increase of 59%, 130%, 91%, 64% and 63% in Piute, Sanpete, Sevier, Wayne and Garfield Counties, respectively in nominal terms.
4. Receipts (nominal) of livestock and livestock products represent an average of 87% (range 89%-95%) of all agricultural receipts in Piute County over the last 23 years.
5. Receipts (nominal) of livestock and livestock products represent an average of 92% (range 88%-95%) of all agricultural receipts in Sanpete County over the last 23 years.
6. Receipts (nominal) of livestock and livestock products represent an average of 82% (range 73%-89%) of all agricultural receipts in Sevier County over the last 23 years.
7. Receipts (nominal) of livestock and livestock products represent an average of 85% (range 82%-89%) of all agricultural receipts in Wayne County over the last 23 years.
8. Receipts (nominal) of livestock and livestock products represent an average of 84% (range 80%-90%) of all agricultural receipts in Garfield County over the last 23 years.

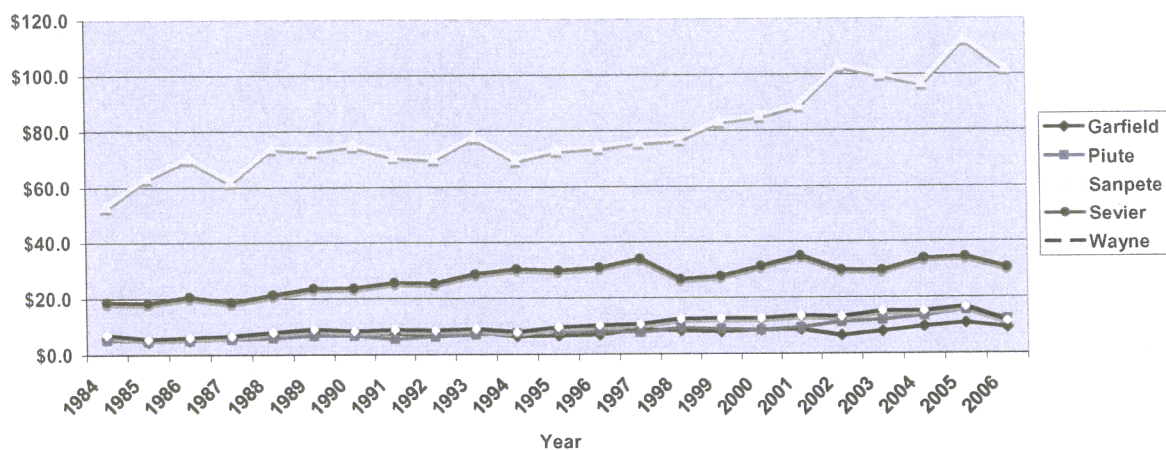
Utah Livestock and Livestock Product Receipts 1984-2006 (Millions of Dollars)												
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
State of Utah	773	716	766	801	915	979	1,011	947	956	1,059	1,026	1,017
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
State of Utah	1,099	1,186	1,237	1,185	1,268	1,408	1,366	1,470	1,641	1,762	1,578	



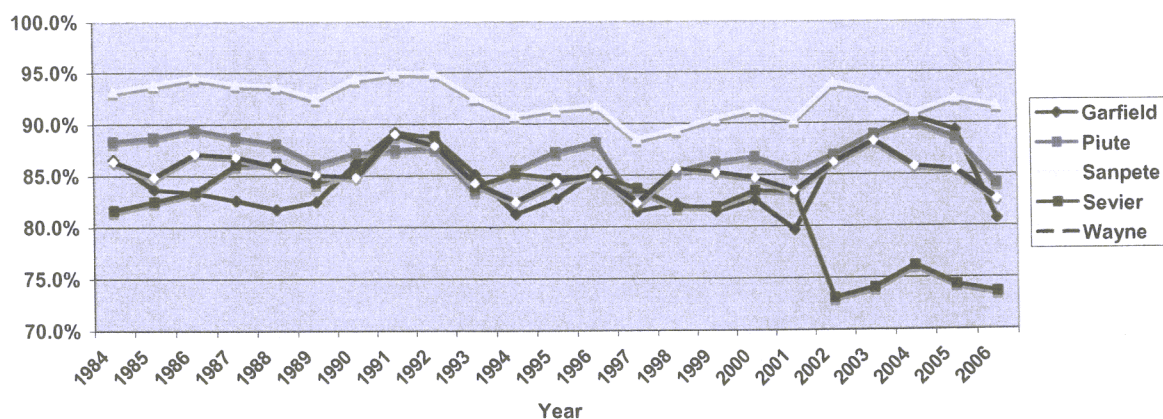
**Agricultural Receipts: Garfield, Piute, Sanpete, Sevier & Wayne Counties 1984-2006**



**Livestock & Livestock Product Receipts - Garfield, Piute, Sanpete, Sevier & Wayne Counties: 1984-2006**



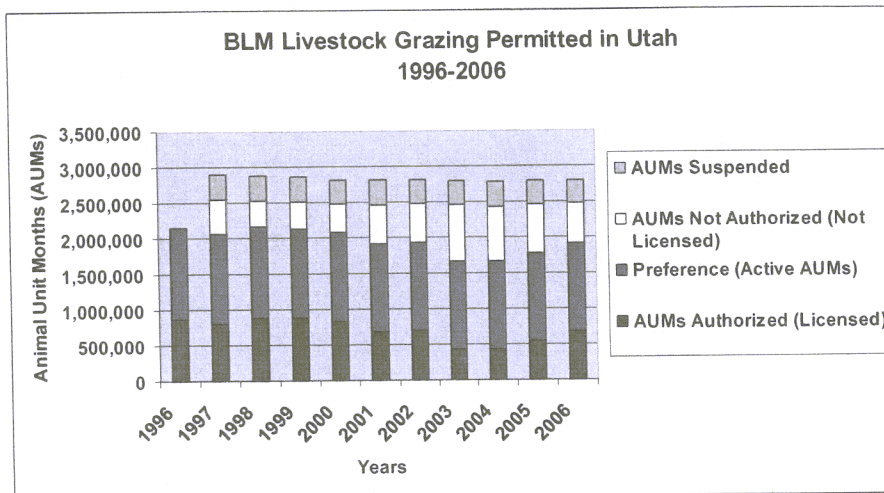
**Livestock & Livestock Product Receipts as a % of All Agricultural Receipts for Counties in the Richfield Field office Planning Area: 1984-2006**





## BLM Livestock Grazing Permitted in Utah 1996-2006

1. There was a general decline (downward trend) in BLM authorized use in Utah from around 1,400,000 AUMs in 1965 to around 800,000 AUMs by 1995 (43% decline) and as low as 435,000 in 2003. Grazing preference has remained relatively stable since 1995 but authorized use has average only around  $\frac{2}{3}$  of preference through time. This is partly by choice by the ranchers but also reflects the level of use BLM is willing to license through time or in a given year. Authorized use was restricted significantly (to  $\pm\frac{1}{3}$  of preference) statewide during 2003-2005 in response to drought.

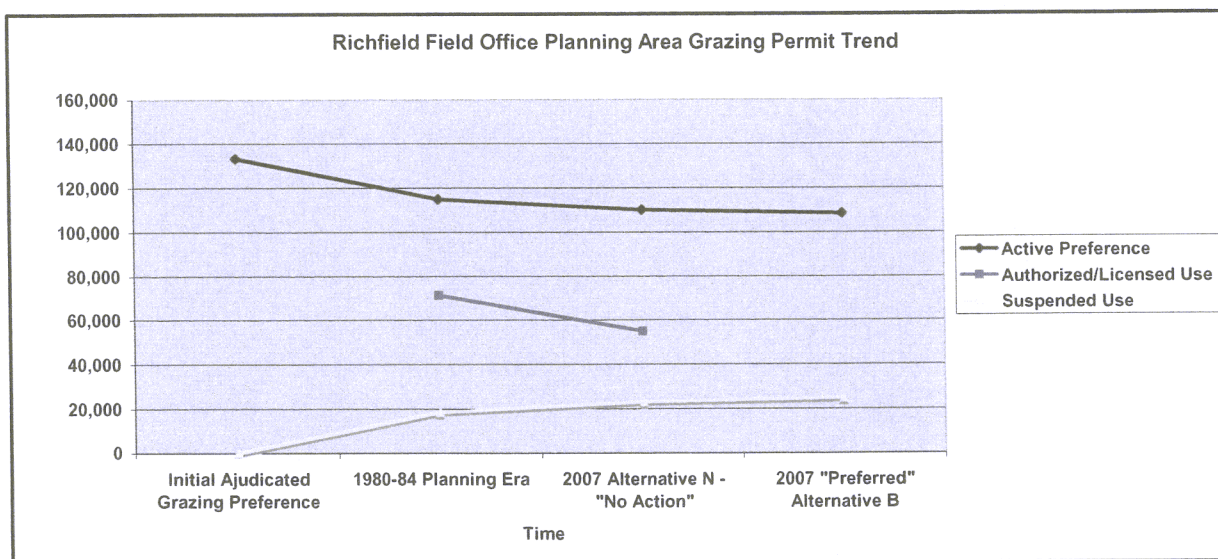


Year	AUMs Authorized (Licensed)	Preference (Active AUMs)	AUMs Not Authorized (Not Licensed)	AUMs Suspended	Number of Permits
1996	868,163	1,280,656	475,018	352,017	1,648
1997	798,881	1,273,899	377,504	352,317	1,641
1998	890,741	1,268,245	376,972	346,383	1,622
1999	880,091	1,257,063	408,165	339,835	1,665
2000	833,715	1,241,880	556,843	347,895	1,593
2001	678,393	1,235,236	534,873	333,768	1,576
2002	703,067	1,237,940	795,938	332,327	1,557
2003	435,406	1,231,344	781,572	333,678	1,543
2004	439,185	1,220,757	692,659	327,801	1,531
2005	544,458	1,237,117	551,738	324,159	1,525
2006	686,267	1,238,005			1,504

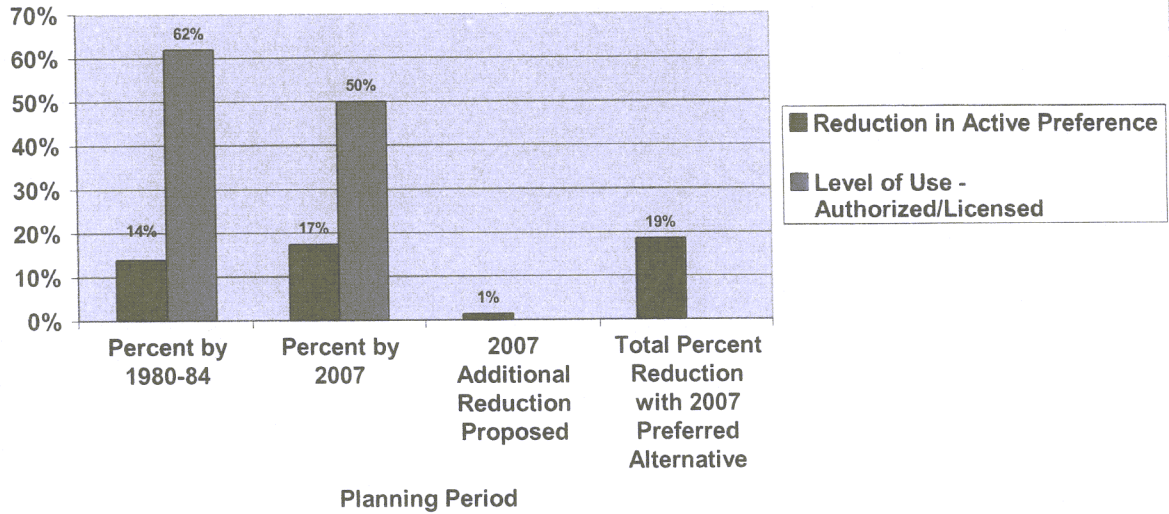


### *Richfield BLM Livestock Grazing Trends*

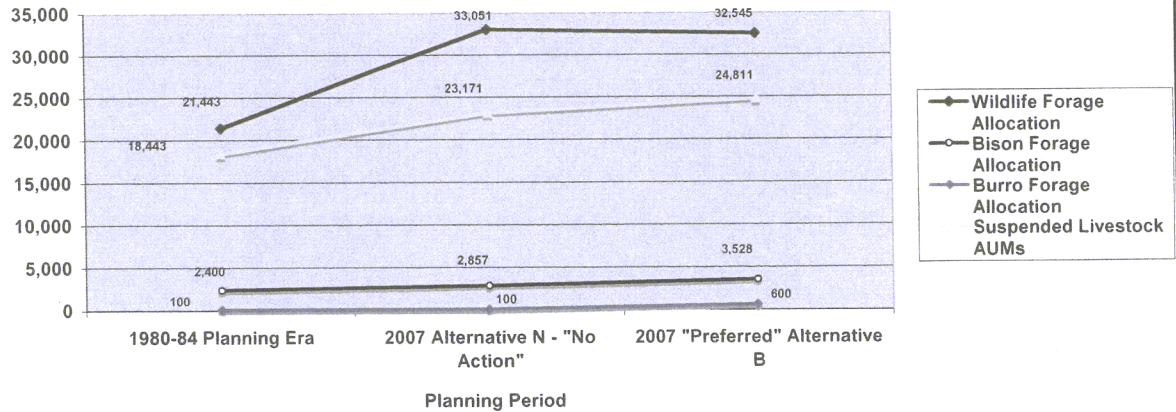
1. The trend in livestock grazing preference and authorized use in the Richfield Field Office Planning Area is downward. There have been reductions of 23,171 AUMs (17%) since grazing adjustment took place and an additional 1,640 AUM reduction (total of 24,811 AUMs or 19% over time) is proposed in the DRMP/DEIS Preferred Alternative B.
2. No reinstatement of suspended or reduced grazing use is proposed under the DRMP/DEIS Preferred Alternative B.
3. The trend in licensed or authorized use is downward from 62% of preference in the 1980 to 1984 planning period to 50% by 2007. This may be due to rancher drought risk management strategies (ranch business risk management) and/or BLM management decisions. Serious droughts from 2002 to 2004 are likely reflected in low licensed/authorized use reported in the DRMP/DEIS.
4. BLM forage allocations for deer, elk, bighorn sheep and antelope were pooled and reported as "wildlife" in the Richfield DRMP/DEIS. The "wildlife" forage allocation increases (+54%) from the 1980-1984 planning period to 2007. Overall increasing forage allocations for these species correlates with increases in animal populations.



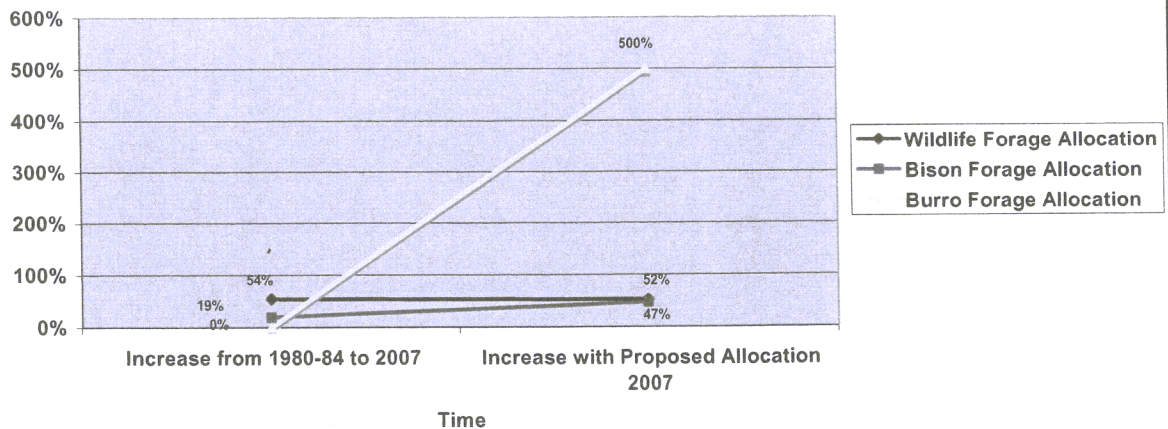
Richfield Field Office 20+ Year Trend in Livestock Grazing Preference Reductions & Use



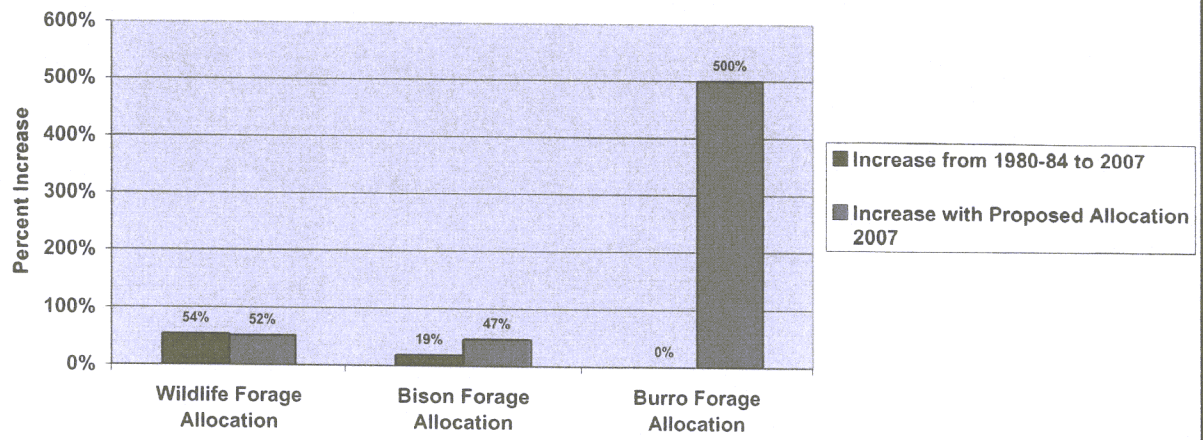
Richfield Field Office 20+ Year Trend in Deer, Antelope & Elk; Bison & Burro Forage Allocations



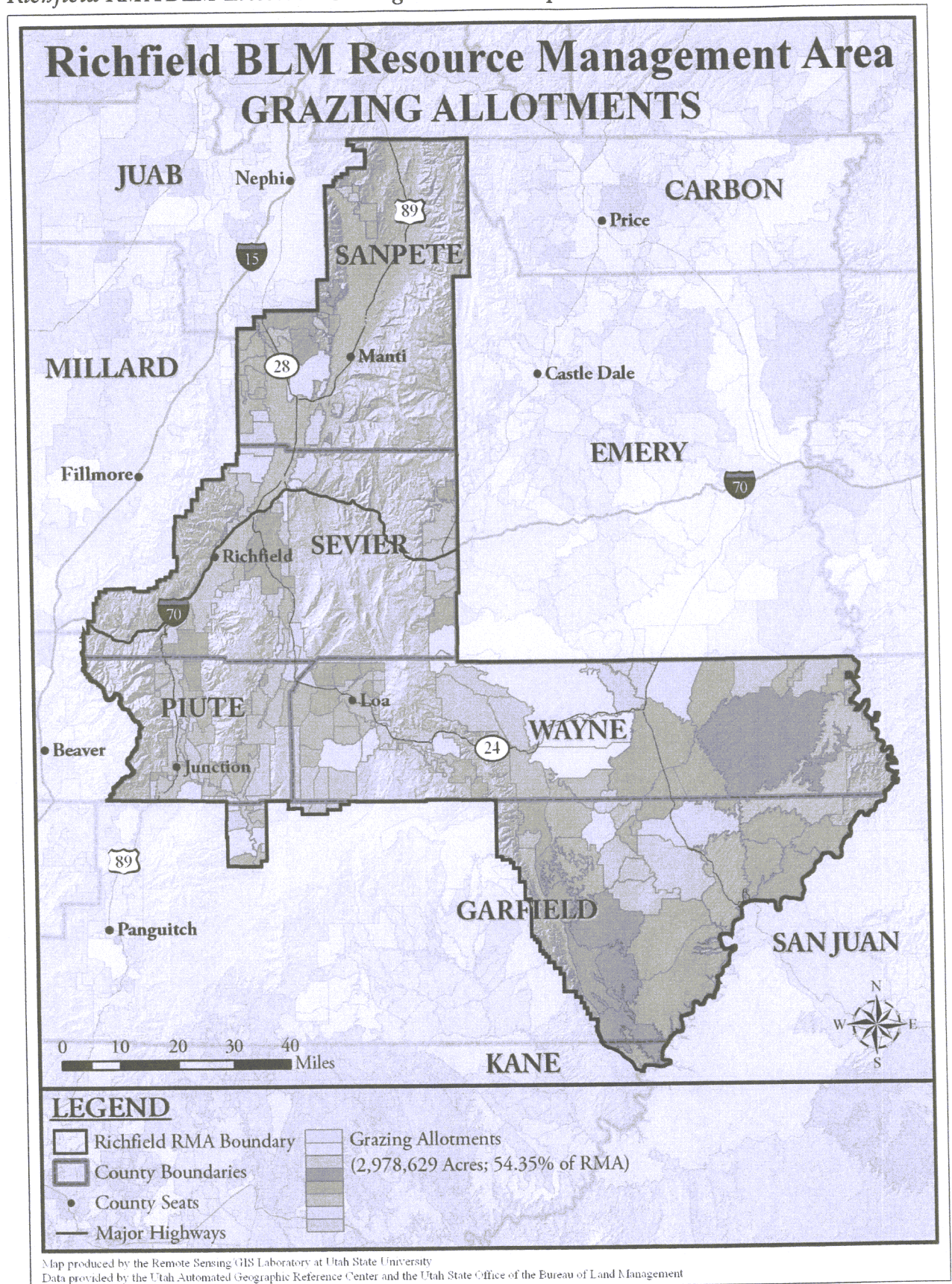
Richfield Field Office Trend in Forage Allocation for Deer, Antelope & Elk; Bison & Burros over the Past 20+ Years



**Richfield Field Office Trend in Forage Allocation for Wildlife (Deer, Antelope & Elk), Bison & Burros over the Past 20+ Years**







## **ATTACHMENT G**



# ATTACHMENT G

*January 21, 2008 Draft of Counties' Comments Re Factory Butte Recreation Plan*

## **Comments of Wayne, Sevier and Garfield Counties Regarding Motorized Recreation Plan Around the Factory Butte Area in Wayne County.**

### **Introduction**

Wayne County, Sevier County and Garfield County (“the Counties”) appreciate the opportunity to comment on the subject of motorized recreation in the Factory Butte Area.<sup>1</sup> Motorized recreation in the Factory Butte Area is a long-standing cultural and social tradition for many citizens in the Counties, as well as an economic benefit to the Counties given the regional (Wasatch Front) and national demand for this activity. The Factory Butte area is renowned locally, regionally and nationally for a high quality type of open, cross-country riding experience. These traditions and economic benefits have been negatively impacted by the BLM’s 2006 closure of the Factory Butte Area to open motorized recreation in all but the Swing Arm City area.

The reason BLM gave for this closure was to protect two species of cactus plants currently on the threatened and endangered list with the National Fish and Wildlife Service (“FWS”). A state-wide OHV group filed a lawsuit against the BLM to challenge this closure, and Wayne and Garfield Counties joined the lawsuit. For purposes of that lawsuit, the plaintiffs assert that the entire 190,000 acre Factory Butte Area should be returned to an “open cross-country” status.

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<sup>1</sup> The term “Factory Butte area” for purposes of this planning document, refers to that area of Bureau of Land Management land, approximately 190,000 acres in size, located east of Capitol Reef National Park, south of the Moroni Slopes, west and north of Highway 24 with an additional area south of Highway 24 and east of Notom Road.



Outside the context of that lawsuit, officials and representatives of the Counties and other interested parties - lead primarily by officials of Sevier County who is not a party to the lawsuit, have informally investigated the concerns behind the BLM's 2006 closure of the Factory Butte Area and have consulted with FWS officials who are knowledgeable about the cactus issue. Based on these investigations and discussions, the Counties (Wayne and Garfield as well as Sevier) believe that a reasonable compromise solution exists which would provide broad protection to the T&E cactus colonies throughout Factory Butte Area while providing open cross-country access to the most prime, traditional riding areas in the Factory Butte Area. In short, there is a "win-win" solution which the Counties would ask the BLM to consider as it fine tunes and finalizes the Factory Butte Recreation plan portion of the Richfield DRMP/EIS. This "win-win" compromise plan is within the parameters of the range of alternatives which have been scoped and studied in the Richfield EIS process.

### **The Compromise Plan**

The Counties propose a compromise plan which creates three categories of motorized recreation use in the Factory Butte Area, in particular land zones described in greater detail below. The three categories are: (1) open cross-country OHV status for certain prime riding areas which for years have traditionally been open to cross-country use, (2) closed to all OHV use in the existing North Caineville and South Caineville Areas of Critical Environmental Concern ("ACEC's"), and (3) "existing roads and trails" status for all remaining land in the Factory Butte Area, meaning all existing roads and trails which are part of Wayne County's transportation plan according to the latest transportation map Wayne County submitted as part of its comments on the Richfield DRMP/EIS.

**1. Designate Certain Lands in the Factory Butte Area as Open to Cross Country OHV Use Subject to Ongoing Rider Education, Efforts, Monitoring and Mitigation for Impacts to T & E Cactus Species in These Areas.**

While OHV use on existing roads and trails is an important component of motorized recreation in the Factory Butte Area, there is still a strong historic and ongoing demand felt at the local, regional and national level for open cross-country use in the vicinity surrounding the Factory Butte itself and in the area north of the motel in Caineville, in addition to open area currently allowed in the Swing Arm City Area. The area surrounding the Factory Butte itself is the prime draw and reason why most OHV riders come from local areas, from the Wasatch Front and from across the country to recreate and pour tourism dollars into the economy of the Counties. Many such tourists stay in the Caineville Motel, and have historically also enjoyed open cross-country use in a limited area behind or to the north of the motel, as a sort of complement to their riding around the Factory Butte and in Swing Arm City.

**A. Open Area Around the Factory Butte Itself**

The following references to surveyed Sections are in Township 27 South Range 9 East. The proposed boundary of the "open" area around the Factory Butte should start at a point on the Factory Butte road nearest the southeast corner of Section 25, and run along the Factory Butte Road northerly until that Road reaches a point approximately in the center of the southwest 1/4 of Section 11; thence depart from the Factory Butte Road and run southwesterly along the edge of the bluegate shale through the southwest 1/4 of Section 11, the southeast 1/4 of Section 10, the northwest 1/4 of Section 15, the southeast 1/4 of Section 16; thence south-southwesterly through the western half of Section 21, the

northwestern 1/4 of Section 28 and the southeastern 1/4 of Section 29 until it reaches the south boundary line of Section 29; thence east along the south boundary line of Sections 29, 28, 27, 26, and 25 until it reaches the Factory Butte Road at the point of beginning.

According to informal discussions with FWS officials, the Counties believe that T&E species of cactus are not known to occur within the above-described open area around Factory Butte. The above-described open area around Factory Butte does not encroach upon Nelson Wash, where a T&E species of cactus is known to occur.

Carsonite signs should be placed along this entire boundary, spaced close enough apart so that at least two signs are visible to riders at all times depending on type of terrain. The signs should advise riders which area is open to cross-country travel and which is not.

B. Open Area in Swing Arm City

The boundary to the open area in Swing Arm City should be as currently designated. Carsonite signs should be placed along this entire boundary, spaced close enough apart so that at least two signs are visible to riders at all times depending on type of terrain. The signs should advise riders which area is open to cross-country travel and which is not.



C. Fence, Corridor and Kiosks to Channel Riders Back and Forth Between Swing Arm City and the Open Area Around the Factory Butte

In order for riders to commute back and forth between the Swing Arm City open area and the above-described open area around the Factory Butte, they must cross Nelson Wash. One T&E cactus species is known to occur in some segments of Nelson Wash. However, according to the FWS officials whom the Counties informally consulted, no impacts to this T&E cactus species should occur as long as the riders keep confined within the southeast 1/4 of Section 34, T27S R9E, while crossing Nelson Wash on their way back and forth between Swing Arm City and the Factory Butte open area. To ensure that riders stay confined to the southeast 1/4 of said Section 34 while crossing back and forth between Swing Arm City and the Factory Butte open area, the Counties propose the following:

Fence

All survey Section references in this paragraph are in Township 28 South Range 9 East. A fence should be placed to run along the flat land situated above and to the northeast of Swing Arm City, in a direction roughly parallel to the northeast rim of Swing Arm City. The distance between the northeast rim of Swing Arm City and the fence itself should be no less than 500 feet. The approximate course of the fence is as follows: Beginning at a point along the Factory Butte Road near the southeast 1/4 of Section 11, the fence should run in a northwesterly direction through the southeast 1/4 of Section 11, the northwest 1/4 of Section 11, the northeast 1/4 of Section 10, and the southwest 1/4 of Section 3 until it reaches the benches of North Caineville Mesa that are too steep for riders to pass. There would be a gap in the fence

somewhere in the northwest 1/4 of Section 11 or the northeast 1/4 of Section 10, the precise location of which would be determined by the BLM. This gap would mark the beginning of the corridor through which riders would commute back and forth between Swing Arm City and the open area around Factory Butte.

### Corridor

Riders passing through a narrow corridor would be more likely to cause rutting. A wider corridor means less likelihood of rutting from vehicle trails. Thus, the corridor between Swing Arm City and the open area around Factory Butte should be at least 30 feet wide. The corridor would commence at the gap in the fence, and run in a northerly direction until it reaches the above-described south boundary of the open area around Factory Butte. The precise course of the corridor would be as determined by the BLM, only the corridor should pass through the southeast 1/4 of Section 34, T27S R9E when it crosses Nelson Wash, as per the consultation with FWS officials in order to avoid impacts to T&E cactus species.

Carsonite signs should be placed along both sides of this corridor, spaced close enough apart so that at least two signs are visible to riders at all times depending on type of terrain. The signs should advise riders which area is open to cross-country travel and which is not.

### Kiosks

Kiosks should be placed at either end of the corridor, one at the gap in the fence toward the Swing Arm City side and one at the south boundary line of the open area around the Factory Butte. A kiosk should be placed where the fence begins next to Factory Butte Road. Two other kiosks

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should be strategically placed along the portion of the Factory Butte Road that bounds the easterly and northeasterly side of the open area around the Factory Butte. A kiosk should be placed in Swing Arm City. Suggested features of these kiosks are as follows:

- The kiosks should appear to be sponsored, built, and put up by local rider groups. This will encourage more respect for their message and result in less likelihood of vandalism, etc.
- The kiosks should educate the riders about the importance of responsible ridership and confining the cross-country riding to open areas.
- The kiosks should encourage riders to be on the look out for cactus poachers and report any suspicious activity to law enforcement officials.
- The kiosks should encourage riders to be on the look out for other riders who may not obey the boundary signs and report them to law enforcement officials.
- The kiosks should educate riders about the importance of balanced use and respecting the boundary signs, as a way of preserving the opportunity for open cross-country riding in the Factory Butte area.
- The kiosk in Swing Arm City and the kiosk where the fence leads off from the Factory Butte Road should illustrate how riders may ride along the fence to the gap in order to traverse the corridor between to the open area around Factory Butte.



Monitoring/Mitigation

As a complement to the kiosks, the Counties favor continuous monitoring of the corridor and adjacent areas of Nelson Wash to determine cactus locations, to determine whether impacts to T&E cactus plants are occurring, to determine whether riders are respecting the corridor boundary signs, and to provide for appropriate mitigation - including re-routing of the corridor - when necessary.

D. Open Area Behind Motel In Caineville

A small area behind the Motel in Caineville should remain open. This would entail portions of Sections 25, 26 and 27 in Township 28S Range 8E. Many tourists come to the general area stay at the Motel, and it is a nice feature for tourists to be able to step outside the motel and recreate in the immediate vicinity. Based on consultation with FWS officials, the Counties do not believe that any T&E cactus species occur in this area and thus would not be negatively impacted by such a designation.

**2. Keep North and South Caineville Mesa ACECs Closed to Any OHV and Other Motorized Travel.**

**3. Designate Remaining Factory Butte Area for OHV Use Limited to All Roads and Trails Designated in Wayne County's Transportation Plan as Indicated in Wayne County's Latest Transportation Map Submitted to the Richfield BLM Field Office.**

Please refer to the latest Wayne County transportation map submitted to the Richfield BLM Field Office. OHV travel should be allowed on all roads and trails designated in that transportation map.

**Conclusion**

While Fish and Wildlife Service must independently review the foregoing plan, the Counties have reason to tentatively believe that such independent FWS review should prove favorable, based on past informal discussions with FWS officials. For these reasons, BLM is urged to adopt this plan in its final Record of Decision on the Richfield DRMP/EIS.

## **ATTACHMENT H**



110°41.000' W

110°40.000' W

110°39.000' W

WGS84 110°38.000' W

R 11 E

R 12 E

**GOATWATER POINT OHV ROUTE RECOMMENDATIONS**

**ALTERNATIVE B OPEN ROUTES**

**ROUTE A**

**ROUTE B**

**ROUTE C (EXISTING)**

**ROUTE C (NEW)**

**UTAH DIVISION OF PARKS AND RECREATION COMMENTS ON RICHFIELD RMP**

**DECEMBER 2007**

38°11.000' N

38°10.000' N

38°09.000' N

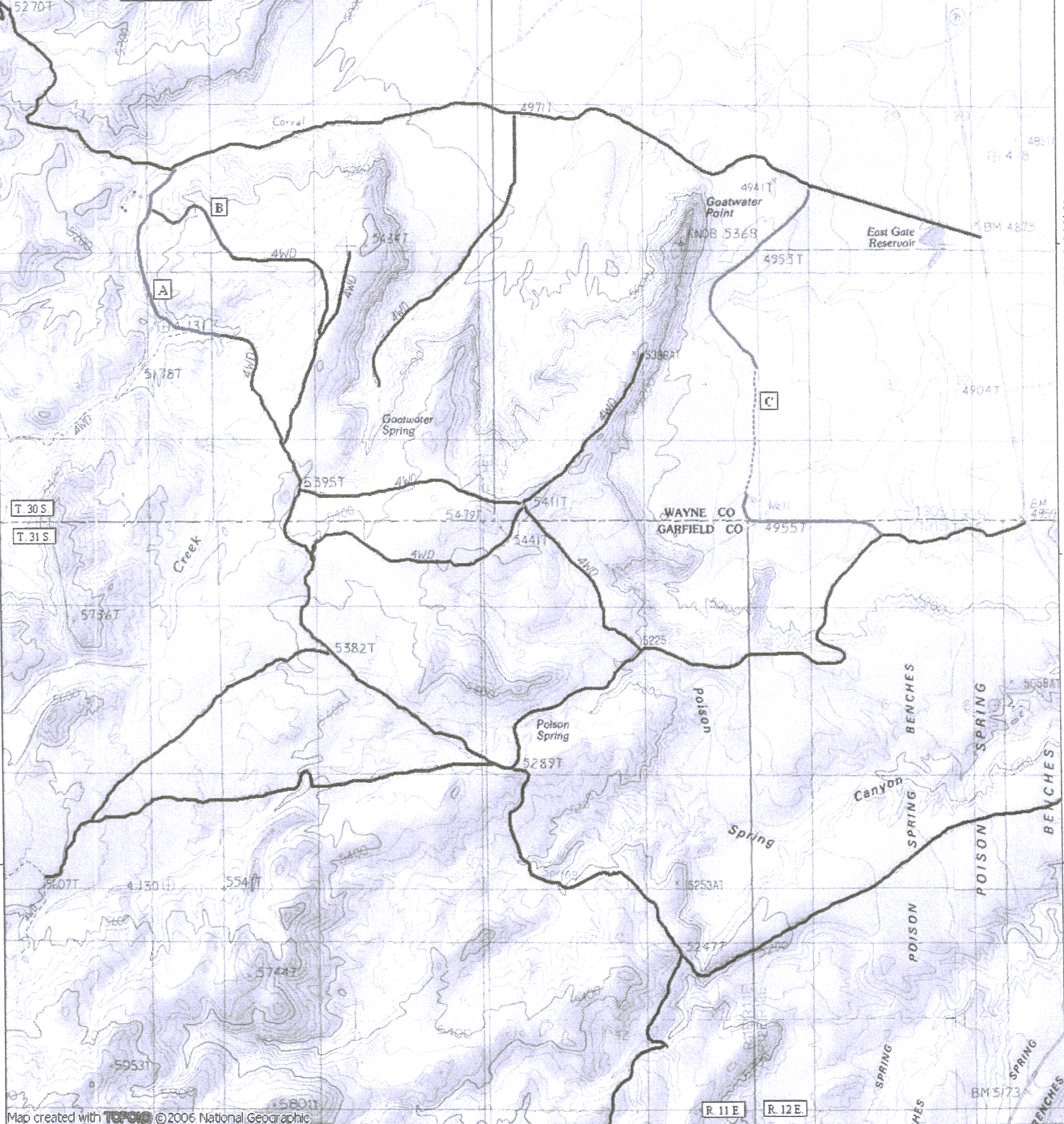
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38°08.000' N



Map created with TOPO! © 2006 National Geographic

110°41.000' W

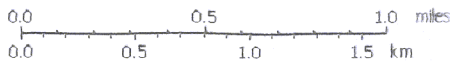
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WGS84 110°38.000' W

R 11 E

R 12 E



**ATTACHMENT H**

TN MN

11V2°

12/04/07

## **ATTACHMENT I**



